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SHARP 13VT-J100 TECHNICAL SERVICE DATA

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SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver ground and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

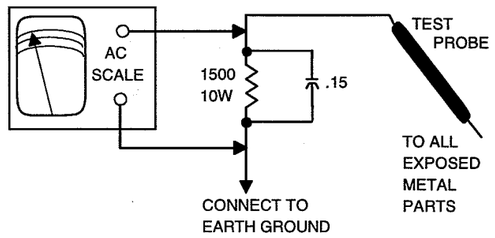
SAFETY CHECKS -- FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



HIGH VOLTAGE SHUTDOWN TEST

Set all customer controls for normal picture. Check for 10.1V ±.5V at TP653. Using an external power supply, apply 13.1V to TP653. The receiver should shut down. If the receiver fails to shut down, the high voltage shutdown circuit requires repair. To return to normal operation, remove external power supply, and momentarily place a short between TP651 and TP652. Restore AC power and check receiver for proper operation.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by SAMS Technical Publishing as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to SAMS Technical Publishing by the manufacturers of the specific type of replacement part listed.

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TVCR-332

MODEL 13VT-J100 (CHASSIS B97A)

SHARP

TVCRfacts™ Technical Service Data

TVCR-332

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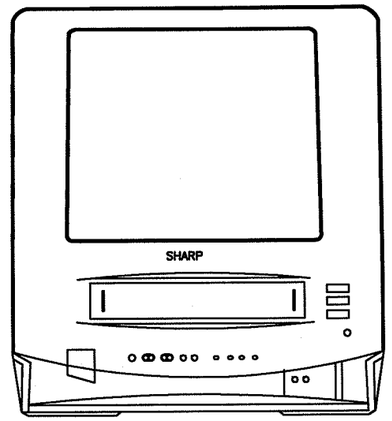
SHARP

Model 13VT-J100 (Chassis B97A)



Coverage includes these additional models and chassis.

MODEL	CHASSIS
13VT-CJ10	B97A
13VT-J150	B97A

Essential coverage for servicing a TV/VCR...

- Schematics
- Electrical Parts List
- Placement Chart
- Exploded Views
- Mechanical Alignment
- Mechanical Parts List
- Waveforms

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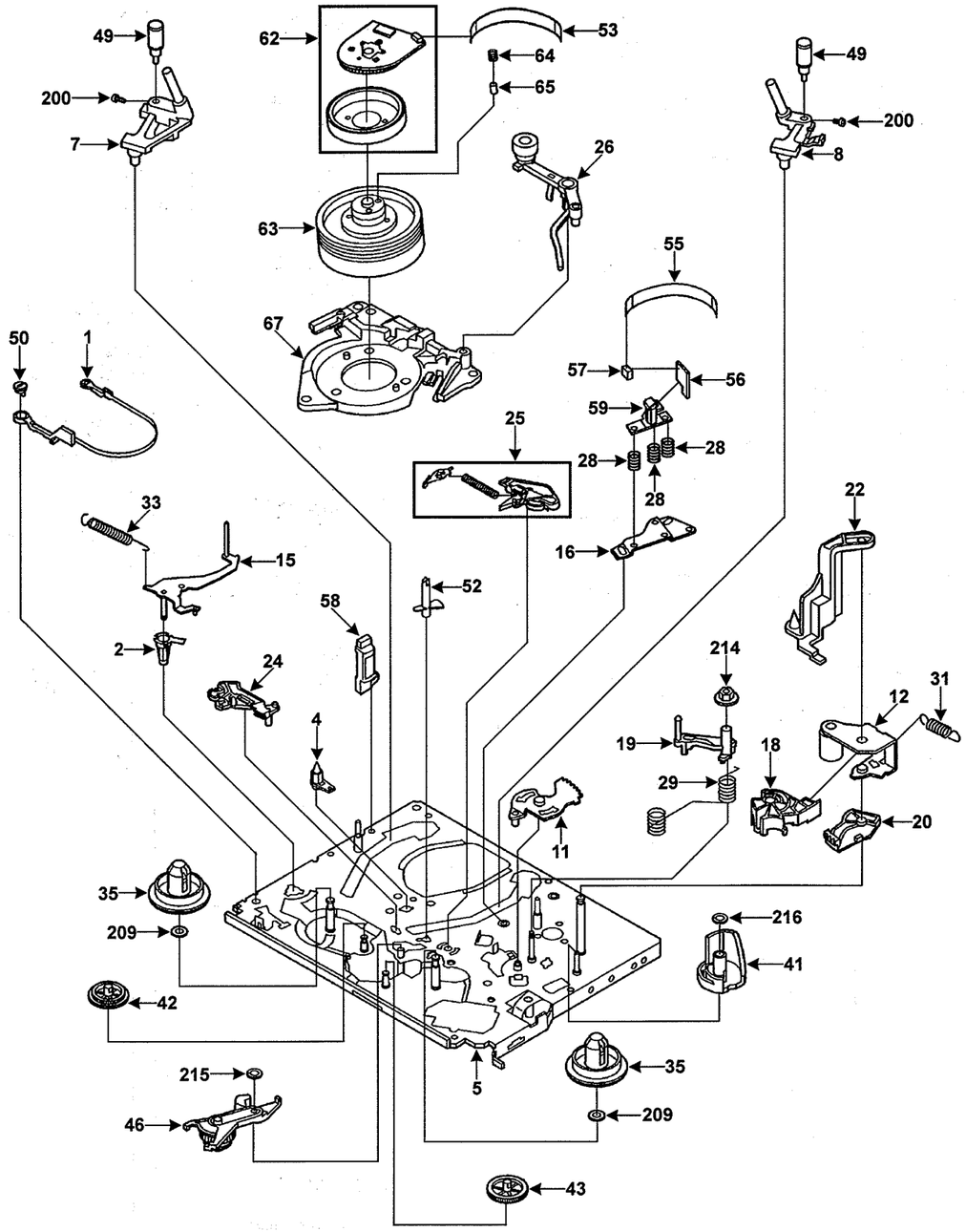
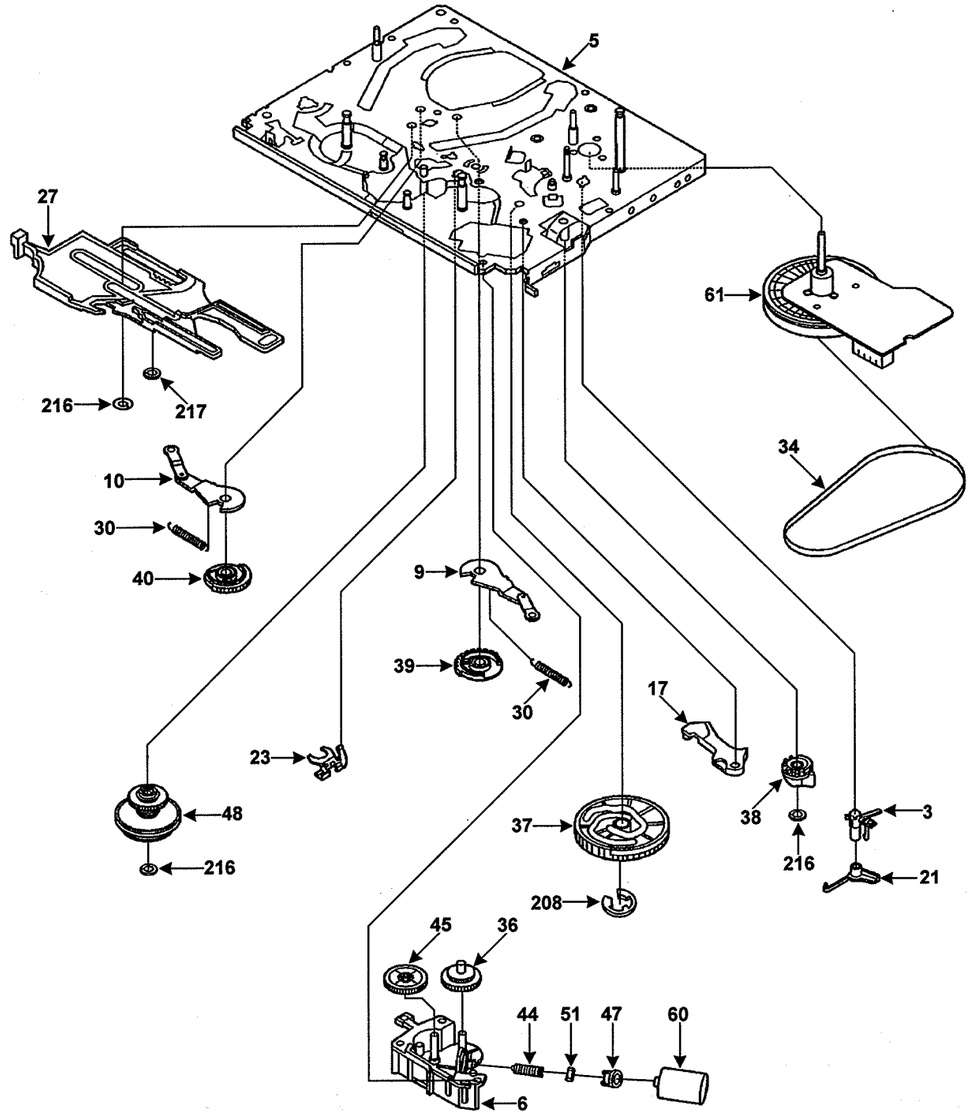
APRIL 2001 SET TVCR-332

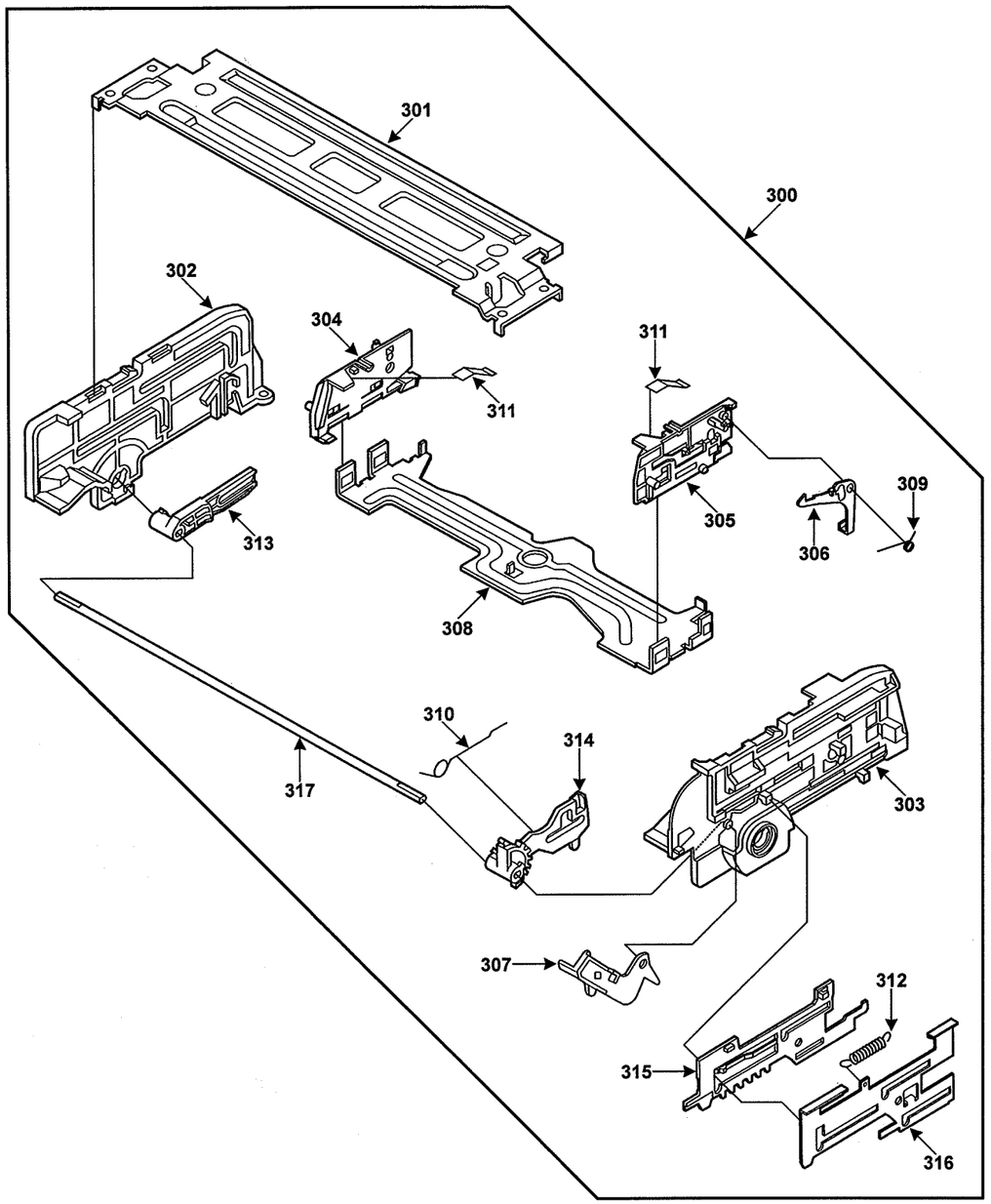
TVCR-332

EXPLODED VIEW - TOP





EXPLODED VIEW - CASSETTE HOUSING CONTROL ASSEMBLY



MECHANICAL PARTS LIST

Item No.	Description	Part No.
1	Tension Band Assembly	LBNDK1009AJZZ
2	Tension Arm Boss	LBOSZ1001AJZZ
3	Slow Brake Boss	LBOSZ1002AJZZ
4	Cassette Stay Left	LBOSZ1003AJZZ
5	Main Chassis Assembly	LCHSM0158AJZZ
6	Loading Motor Block	LHLDZ1958AJZZ
7	Supply Pole Base Assembly	LPOLM0056GEZZ
8	Take-Up Pole Base Assembly	LPOLM0057GEZZ
9	Take-Up Loading Arm Assembly	MLEVF0459AJZZ
10	Supply Loading Arm Assembly	MLEVF0461AJZZ
11	Pinch Drive Lever Assembly	MLEVF0463AJZZ
12	Pinch Roller Lever Assembly	MLEVF0464GEZZ
15	Tension Arm Assembly	MLEVF0467AJZZ
16	Audio/Control Head Arm	MLEVF0468AJFW
17	Shifter Drive Lever	MLEVP0271AJZZ
18	Pinch Double Action Lever	MLEVP0272AJZZ
19	Reverse Guide Lever Assembly	MLEVP0273AJZZ
20	Reverse Drive Lever	MLEVP0275AJZZ
21	Slow Brake	MLEVP0276AJZZ
22	Open Lever	MLEVP0277AJZZ
23	Clutch Lever	MLEVP0278AJZZ
24	Supply Main Brake Assembly	MLEVP0288AJZZ
25	Take-Up Main Brake Assembly	MLEVP0289AJZZ
26	Auto Head Cleaner	CLEVP0287AJZZ
27	Shifter	MSLiP0008AJZZ
28	Audio/Control Head Spring	MSPRC0205AJFJ
29	Reverse Guide Spring	MSPRD0175AJFJ
30	Loading Double Action Spring	MSPRT0402AJFJ
31	Pinch Double Action Spring	MSPRT0403AJFJ
33	Tension Spring	MSPRT0405AJFJ
34	Drive Belt	NBLTK0067AJ00
35	Reel Disk	NDAiV1070AJ00
36	Loading Connect Gear	NGERH1267AJZZ
37	Master Cam	NGERH1268AJ00
38	Cassette Control Drive Gear	NGERH1269AJZZ
39	Take-Up Loading Gear	NGERH1270AJZZ
40	Supply Loading Gear	NGERH1271AJZZ
41	Pinch Drive Cam	NGERH1272AJZZ
42	Supply Reel Relay Gear	NGERH1289AJZZ
43	Take-Up Reel Relay Gear	NGERH1290AJZZ
44	Worm Gear	NGERW1062AJZZ
45	Worm Wheel Gear	NGERW1063AJZZ
46	Idler Wheel Assembly	NiDR-0015AJZZ
47	Motor Pully	NPLYV0160AJZZ
48	Pulley Limiter Assembly	NPLYV0156AJZZ
49	Guide Roller	NROLP0110GEZZ
50	Tension Pole Adjuster	NSFTP0034AJZZ
51	Damper Raber	PGUMM0043AJZZ
52	Light Guide	PREFL1007AJZZ
53	Flat Cable	QCNW-0247AJZZ
55	Flat Cable	QCNW-0272AJZZ
56	Audio/Control Head Board	QPWBF5243AJZZ
57	6 pin Socket	QSOCN0605REN1
58	Full Erase Head	RHEDT0031AJZZ
59	Audio/Control Head Assembly	RHEDU0085GEZZ
60	Loading Motor	RMOTM1062GEZZ
61	Capstan Motor	RMOTN2053GEZZ
62	Drum Drive Motor	RMOTP1129GEZZ
63	Upper and Lower Drum Assembly	DDRMW0014TEX0
64	Drum Earth Brush Spring	MSPRC0194GEFJ
65	Drum Earth Brush	QBRSK0034GEZZ
67	Drum Base	PGiDC0055GEFW
200	Screw	LX-XZ3030GEFD
208	E-Ring	XRESJ40-06000
209	Washer 5.2 X 9.5 X .3	XWHJZ52-03095
	Washer 5.2 X 9.5 X .4	XWHJZ52-04095
	Washer 5.2 X 9.5 X .5	XWHJZ52-05095
	Washer 5.2 X 9.5 X .6	XWHJZ52-06095
	Washer 5.2 X 9.5 X .7	XWHJZ52-07095
214	Reverse Guide Adjusting Nut	PSPAP0009AJZZ
215	Cut Washer (1)	LX-WZ1003GE00
216	Cut Washer (1)	LX-WZ1041GE00
217	Cut Washer (1)	LX-WZ1073GE00
300	Cassette Housing Control Assembly	CHLDX3074TVE0
301	Upper Plate	LANGF9592AJFW
302	Left Frame	LHLDX1028AJ00
303	Right Frame	LHLDX1029AJ00
304	Left Holder	LHLDX1030AJZZ
305	Right Holder	LHLDX1031AJZZ
306	Right Proof Lever	MLEVF0469AJFW
307	Door Opener Lever	MLEVP0281AJ00
308	Slider	MSLiF0073AJFW
309	Right Proof Lever Spring	MSPRD0151AJFJ
310	Right Drive Gear Spring	MSPRD0166AJFJ
311	Cassette Spring	MSPRP0175AJFJ
312	Spring	MSPRT0381AJFJ
313	Left Drive Gear	NGERH1278AJZZ
314	Right Drive Gear	NGERH1279AJZZ
315	Double Action Rack Gear	NGERR1008AJ00
316	Drive Angle Gear	NGERR3005AJFW
317	Main Shaft	NSFTD0041AJFD

(1) Cut washer is not reusable. If removed, replace with a new one.

MECHANICAL ALIGNMENT

Numbers in parenthesis indicate the number used in the Mechanical Parts List and Exploded Views. All alignments are made with unit in the eject mode.

MECHANISM INITIAL SETTING

Turn the pulley on the Loading Motor (60) until the initial setting is achieved.

CASSETTE HOUSING CONTROL ALIGNMENT

Cassette Control Drive Gear / Drive Angle Gear

Align the Cassette Control Drive Gear (38) with the Drive Angle Gear (316) as shown in figure 1.

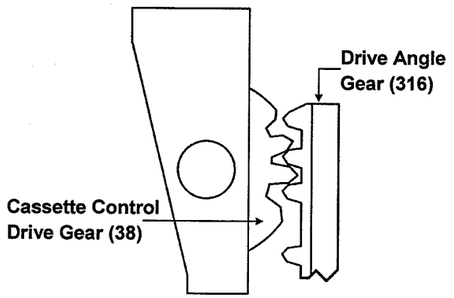


Figure 1

Drive Angle Gear / Right Drive Gear

Align the Drive Angle Gear (316) with the Right Drive Gear (314) as shown in figure 2.

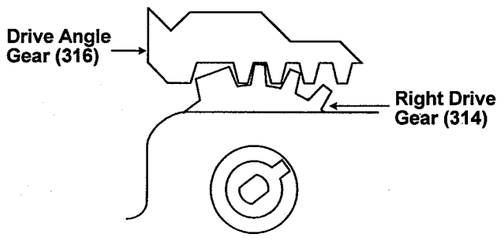


Figure 2

GEAR ALIGNMENT

Pinch Drive Lever Assembly / Reverse Guide Lever Assembly / Reverse Drive Lever / Pinch Drive Cam

Align the Reverse Drive Lever (20) with the Reverse Guide Lever Assembly (19) and the Pinch Drive Lever Assembly (11). Align the Pinch Drive Cam (41) with the Pinch Drive Lever Assembly as shown in figure 3.

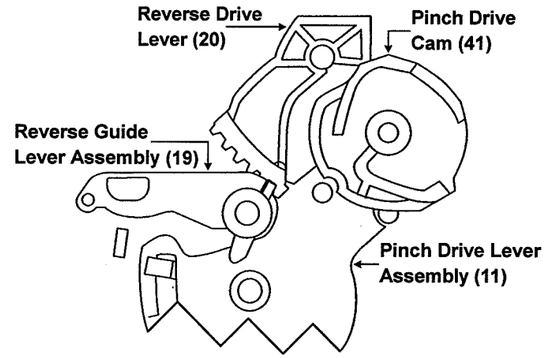


Figure 3

Take-Up Loading Gear / Supply Loading Gear

Align the Take-Up Loading Gear (39) with the Supply Loading Gear (40) as shown in figure 4.

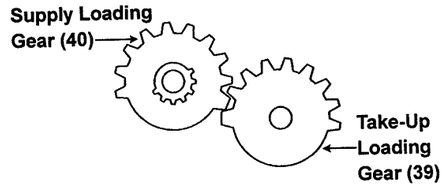


Figure 4

Take-Up Loading Gear / Shifter

Align the Take-Up Loading Gear (39) with the hole in the Shifter (27) as shown in figure 5.

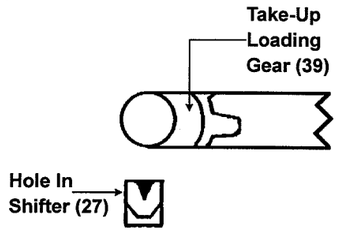


Figure 5

Cassette Control Drive Gear / Master Cam

Align the Cassette Control Drive Gear (38) with the wide tooth of Master Cam (37) as shown in figure 6.

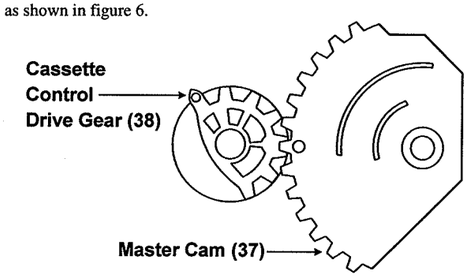


Figure 6

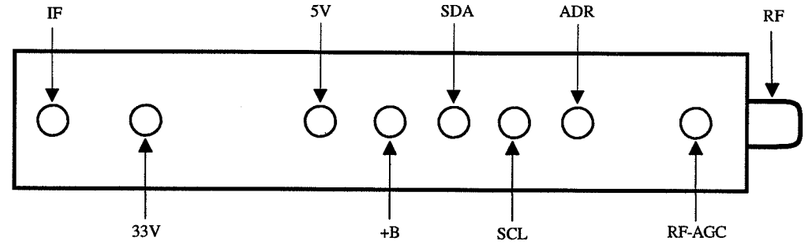
TUNER INFORMATION

TUNER VOLTAGE CHART

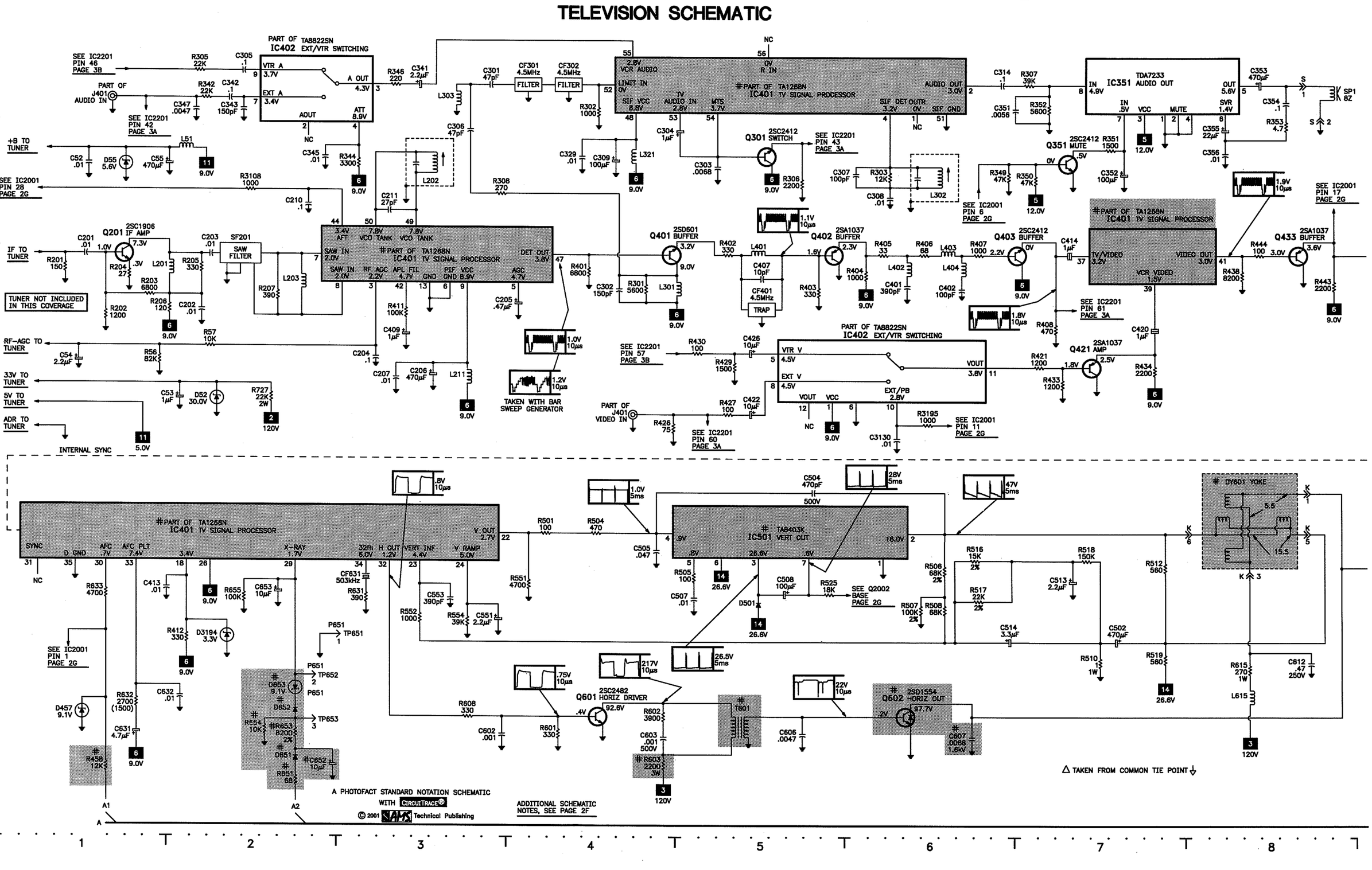
Pin	VHF Low Band	VHF High Band	UHF Band
RF-AGC	4.0V	3.7V	3.1V
ADR	0V	0V	0V
SCL	4.9V	4.9V	4.9V
SDA	4.9V	4.9V	4.9V
+B	5.0V	5.0V	5.0V
5V	5.0V	5.0V	5.0V
33V	33.0V	33.0V	33.0V
IF	0V	0V	0V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

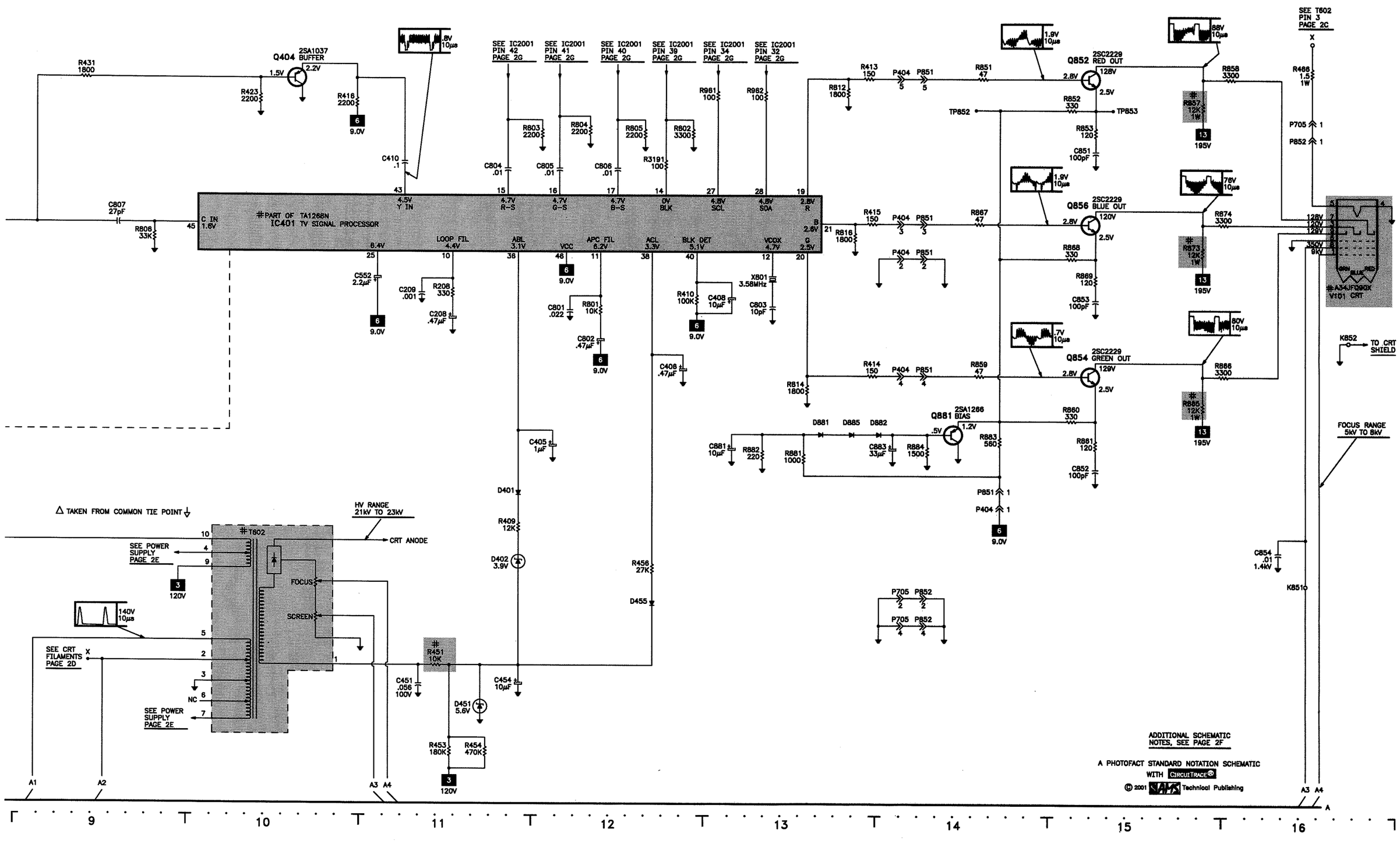
TUNER TERMINAL GUIDE



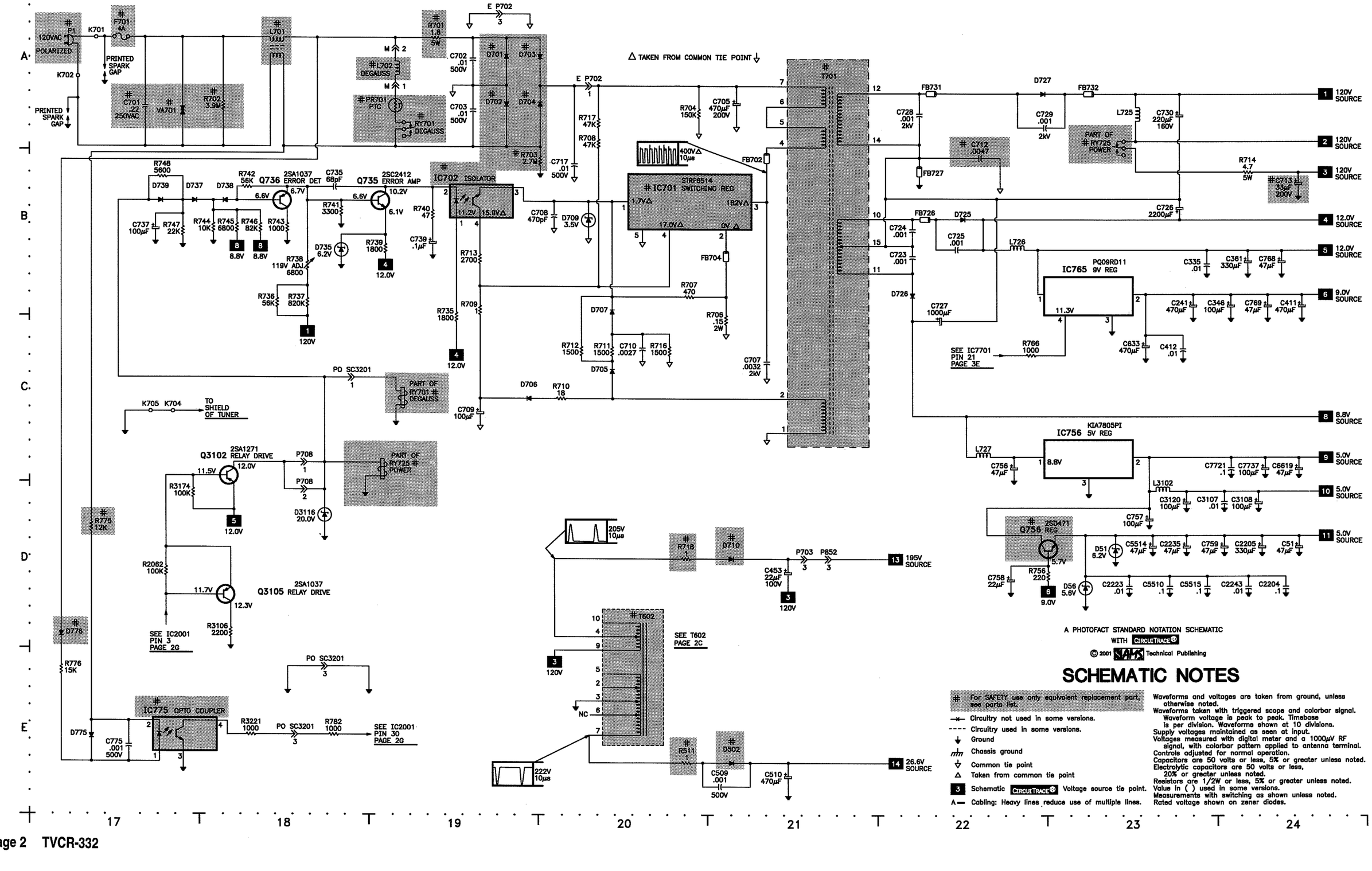
TELEVISION SCHEMATIC



TELEVISION SCHEMATIC continued



POWER SUPPLY SCHEMATIC



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SCHEMATIC NOTES

For SAFETY use only equivalent replacement part, see parts list.

→← Circuitry not used in some versions.

---- Circuitry used in some versions.

Ground

Chassis ground

Common tie point

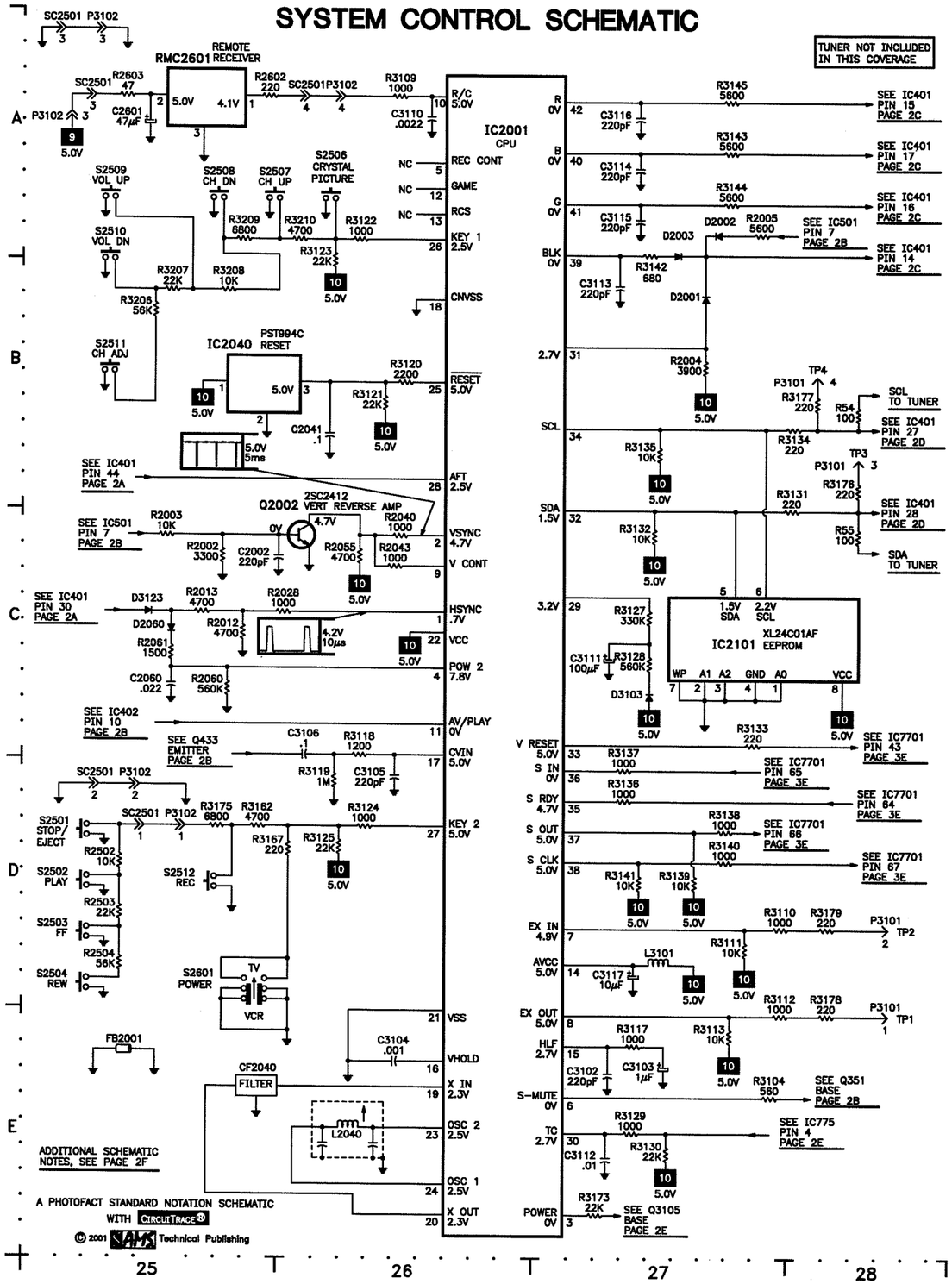
△ Taken from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A— Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless otherwise noted.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000µV RF signal, with colorbar pattern applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown unless noted.
Rated voltage shown on zener diodes.

G
SYSTEM CONTROL SCHEMATIC

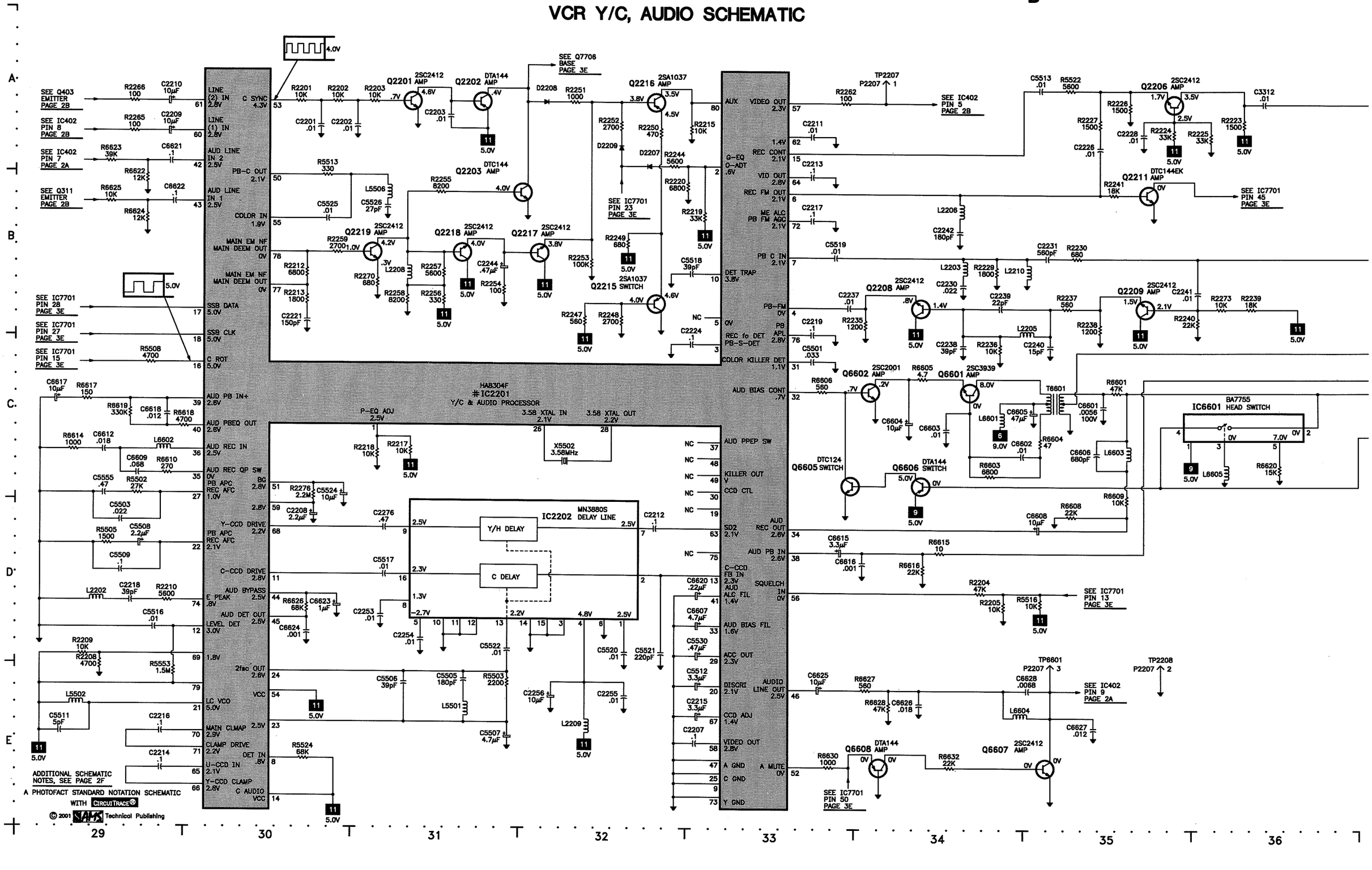


TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.
Oscilloscope	SC3100
Generators	
RGB	CM2125
Multiburst Signal	VG91
Color Bar	VG91
TV Stereo	VG91
Digital VOM	SC3100
Frequency Meter	SC3100
Hi-Voltage Probe	HP200
Accessory Probes	TP212
Isolation Transformer	PR570
Capacitance Analyzer	LC102
CRT Analyzer	CR7000
AC Leakage Tester	PR570
Inductance Analyzer	LC102
Flyback Yoke Tester	TVA92
Field Strength Meter	SL753
Transistor Tester	TF46
Horizontal Analyzer	HA-2500
Video Analyzer	VG91, TVA92

VCR Y/C, AUDIO SCHEMATIC


A
B
HA8304F
#IC2201
Y/C & AUDIO PROCESSOR
IC2202 MN3880S DELAY LINE
Y/H DELAY
C DELAY
X5502 3.58MHz
IC6601 BA7755 HEAD SWITCH
SEE Q403 EMITTER PAGE 2B
SEE IC402 PIN 8 PAGE 2B
SEE IC402 PIN 7 PAGE 2A
SEE Q311 EMITTER PAGE 2B
SEE IC7701 PIN 28 PAGE 3E
SEE IC7701 PIN 27 PAGE 3E
SEE IC7701 PIN 15 PAGE 3E
SEE Q7706 BASE PAGE 3E
SEE IC7701 PIN 23 PAGE 3E
SEE IC402 PIN 5 PAGE 2B
SEE IC7701 PIN 45 PAGE 3E
SEE IC7701 PIN 13 PAGE 3E
SEE IC7701 PIN 50 PAGE 3E
SEE IC402 PIN 9 PAGE 2A
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2F
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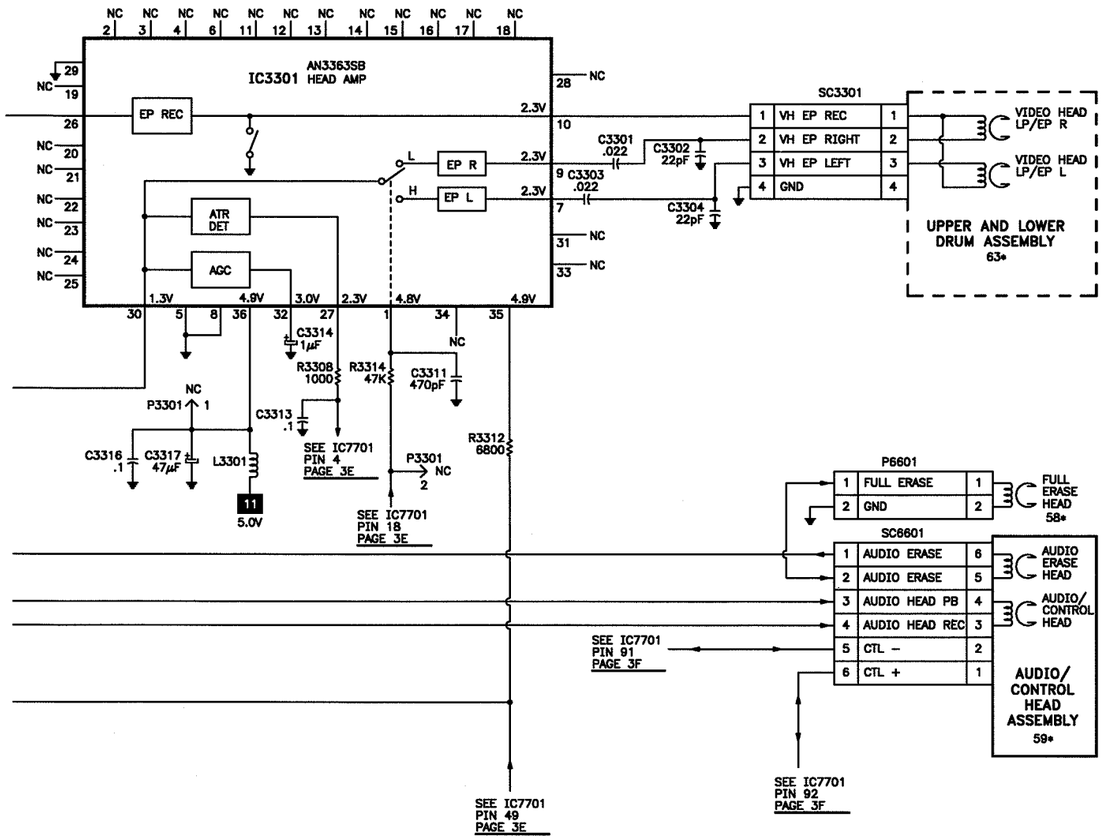
C
VCR Y/C, AUDIO SCHEMATIC continued



• INDICATES THE ITEM NUMBER USED IN THE MECHANICAL PARTS LIST AND EXPLODED VIEWS.

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2F

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MISCELLANEOUS ADJUSTMENTS

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, color, picture, and screen control to minimum. Connect a high voltage probe to CRT anode. High voltage should measure 21kV to 23kV.

119V ADJUST

Tune in a picture. Connect voltmeter to the cathode of D727 and ground. Adjust R738 for 120V ±1V.

ENTERING SERVICE MODE

Service mode adjustments are required when IC401 and IC2101 are replaced. If CRT is replaced perform only adjustments relating to the CRT. If IC2001 is replaced no adjustment is required.

Turn on receiver and use reset function in the video adjustment menu to ensure that customer controls are in their proper reset position. Remove AC power. Press and hold the channel up button on the receiver while restoring AC power. The service mode will now be displayed.

When in the service mode a number is displayed indicating the service number and it is changed by pressing the channel up / down buttons on the receiver or remote transmitter. The on-set data value can be changed by pressing the volume up / down buttons on the receiver or remote transmitter. For a complete listing of the service adjustments, refer to the Service Mode Adjustment Chart.

EXIT SERVICE MODE

Turn off the power or unplug the receiver to exit service mode.

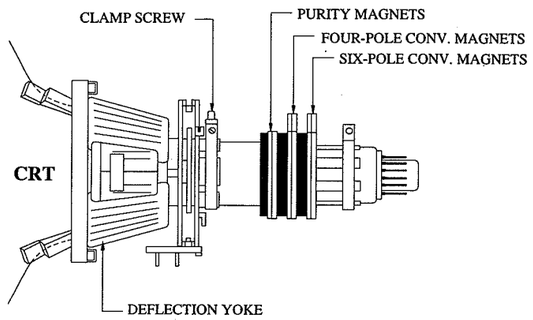
RESETTING TO INITIAL VALUES

The initial values are written to IC2101 by entering the service mode and pressing the channel up and down buttons on the receiver for more than two seconds.

COLOR PURITY

Operate the receiver for 15 minutes. Tune in a green raster. Use a degaussing coil to demagnetize the CRT and mounting brackets. Loosen the deflection yoke clamp screw and slide the deflection yoke backward to obtain a vertical green band. Rotate and spread the purity magnet tabs until the green band is centered on the screen. Move the deflection yoke forward to obtain a uniform green screen.

CRT NECK ASSEMBLY



RF AGC

Tune in a picture. Enter the service mode and select service adjustment item RF AGC. Set the data value to a point where no snow (noise) appears in picture. Exit the service mode to select another channel. Check all channels for proper operation.

VCO

Connect a digital voltmeter to pin 44 of IC401 and ground. Tune in a local channel. Enter the service mode and select service adjustment item PIF-VCO. Set the data value to 64. Adjust L202 to obtain a reading of 2.5V on the digital voltmeter.

CAPTION POSITION

Enter the service mode and select service adjustment item Text Box. A black text box appears on screen. Adjust data value to center text box.

WHITE BALANCE

Operate the receiver for 15 minutes. Enter the service mode and select service adjustment item Color. Set the data value to 0. Set brightness for a visible raster. Alternately adjust data value of service adjustment items G Gain and B Gain until a good gray scale with normal white is obtained. Select service adjustment item Color, set the data value for normal color level.

GRAY SCALE

Tune in an active channel. Set color, brightness, and picture to minimum. Enter the service mode, select adjustment item Y-Mute and adjust the data value to 1 to turn off the luminance signal (Y-Mute). Select service adjustment item Brightness and set the data value to 28. Adjust screen control, if necessary, to obtain a barely visible raster. Adjust service items R Cutoff, G Cutoff, and B Cutoff for a good gray scale with normal white at high and low brightness. Select service adjustment item Y-Mute and adjust the data value to 0. Set color to midrange. Adjust screen control for normal brightness.

CONVERGENCE

Operate the receiver for 15 minutes. Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust the 4-pole magnet tabs to converge the red and blue dots at the center of the screen. Adjust the 6-pole magnet tabs to converge the red/blue dots over the green dots at the center of the screen.

NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge vertically and rotate both tabs in the same direction to converge horizontally. Since the 4-pole and 6-pole magnets interact, repeat the adjustment until center convergence is correct.

Tune in a crosshatch pattern and remove the rubber wedges between the deflection yoke and the CRT. Tilt the deflection yoke up or down to converge the vertical lines at top and bottom of screen and the horizontal lines at the right and left sides of the screen. Tilt the deflection yoke right or left to converge horizontal lines at top and bottom of screen and the vertical lines at the right and left sides of the screen. Repeat convergence procedure if necessary to obtain best overall convergence.

SERVO SCHEMATIC

E F

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2F

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SEE IC2001 PIN 37 PAGE 2G — R7750 1000 — DRUM PG IN 66 5.0V

SEE IC2001 PIN 38 PAGE 2G — R7751 1000 — DRUM FG IN 67 5.0V

SEE IC3301 PIN 27 PAGE 3C — R7703 1000 — C7701 .01 — ATR DATA 4 2.4V

SEE IC2001 PIN 33 PAGE 2G — R7821 1000 — C7749 .01 — R7820 1000 — R7822 100K — RESET 43 4.8V

SEE Q2211 COLLECTOR PAGE 3B — R7727 1000 — FV-CTL (H) 45 0V

SEE Q2202 COLLECTOR PAGE 3A — R7804 2200 — Q7706 2SC2412 VERT SYNC — R7803 10K — C7714 .0033 — R7770 1000 — VSYNC IN (L) 84 4.5V

S7701 REC TIP — R7818 10K — C7707 .01 — R7724 1000 — REC TIP SW 41 0V

Q7703 START SENSOR — R7792 12K — C7755 .1 — R7701 1000 — START SENSOR 2 5.0V

Q7704 END SENSOR — R7794 12K — C7756 .1 — R7702 1000 — END SENSOR 3 5.0V

SENSOR BOARD

D7707 CASSETTE — R7795 150

P7707

1	AT5V	1	
2	CAM SWA	2	R7823 1000 — CAM SW A 100 .1V
3	CAM SWB	3	R7824 1000 — CAM SW B 1 .1V
4	TAKE UP REEL PULSE	4	R7767 1000 — TAKE UP REEL 80 5.0V
5	SUPPLY REEL PULSE	5	R7766 1000 — SUPPLY REEL 79 5.0V
6	GND	6	

D7705 CAM SW A 1.1V — R7800 270 — R7799 100K — C7735 .01

D7704 CAM SW B — R7802 270 — R7801 100K — C7736 .01

D7702 TAKEUP REEL SENSOR — R7777 1000 — R7778 150K — C7722 .01

D7703 SUPPLY REEL SENSOR — R7779 1000 — R7780 150K — C7723 .01

R7788 10K 1% — R7793 10K 1% — C7728 .01 — C7729 10µF — 1/2 VCC IN 90 2.5V

SYS CON READY 5.0V — R7748 1000 — SEE IC2001 PIN 35 PAGE 2G — 64

SYS CON DATA 5.0V — R7749 1000 — SEE IC2001 PIN 36 PAGE 2G — 65

REC BIAS CTL 5.0V — R7730 1000 — SEE IC3301 PIN 35 PAGE 3C — 49

H.S.P. 5.0V — R7712 1000 — SEE IC3301 PIN 1 PAAGE 3C — 18

A MUTE (H) 0V — R7731 1000 — SEE Q6608 EMITTER PAGE 3B — 50

PCOM (H) 5.0V — SEE IC765 PIN 4 PAGE 2F — R9902 4700 — 9 5.0V — 21

NC 9 — NC 10 — NC 14 HEAD SHORT H — NC 16 HA SW — NC 19 AHSO — NC 29 EQ SW H — NC 30 EE H — NC 32 AUX H — NC 33 OUTPUT SELECT

M37776M5A135GP

IC7701

SYSTEM CONTROLLER/SERVO CONTROLLER

SEARCH H 44 — ALPB L 48 — HIFI CLK 51 — DRUM FG MON 70 — PB CTL MON 71 — 81

EP (H) — NC 22 — NC 24 — NC 25 — NC 26 — HIFI — NC 52 — SERIAL MONITOR — NC 63 — CAP FG MONITOR — NC 68 — DRUM PG MONITOR — NC 69

YC CLK 5.0V — R7719 1000 — SEE IC2201 PIN 18 PAGE 3A — 27

YC DATA 5.0V — R7720 1000 — SEE IC2201 PIN 17 PAGE 3A — 28

FV OUT 0V — R7707 1000 — SEE IC2201 PIN 56 PAGE 3B — 13

SPT (L) 0V — SEE IC2201 PIN 2 PAGE 3B — 23

VIDEO MUTE 0V — NC 31

CHROMA ROTATION 0V — R7708 1000 — SEE IC2201 PIN 16 PAGE 3A — 15 — C7702 .01

R7812 8200 — SYSTEM SELECT 5 0V

R7711 1000 — ENV DET IN 17 0V

R7827 10K — SVHS DET IN 42 0V

R7735 10K — INITIAL JUMPER 1 53 0V

R7737 10K — INITIAL JUMPER 2 54 0V

R7826 10K — AUDIO NORMAL L 57 0V

R7769 10K — AUDIO NORMAL H 82 0V

C7717 10µF — CTRL AMP C 95 2.5V

NUB GND 34

NUA GND 35

DIGITAL GND 40

DIGITAL AMP GND 88

CTRL GND 96

R7811 8200 — VCR KEY 1 6 5.0V

R7810 8200 — VCR KEY 2 7 5.0V

R7809 8200 — VCR KEY 3 8 5.0V

R7738 10K — INITIAL JUMPER 3 55 5.0V

R7740 10K — INITIAL JUMPER 4 56 5.0V

ANALOG AMP VCC 98

A/D 99

9 5.0V

FB7702 — L7701 — C7750 .01 — C7704 .1 — DIGITAL VCC 37 5.0V

CLK SEL 36

P7701 2 — P7701 1 — R7782 1000 — R7781 10K — NON CASSETTE JUMPER 83 0V

P7702 4 — P7702 3 — C7719 .01 — R7776 1000 — CTL AMP OUT 97 2.5V

R7775 3300 — C7715 22µF — C7716 .001 — CTL+SW OUT 93 0V

CTL AMP IN 94 2.5V

LDM FWD 0V — R7805 10K — 12

LDM REV 0V — R7806 10K — 11

LDM VOLTAGE SW 0V — NC — 20

CAP REV L 5.0V — R7753 1000 — 4.4V — 73

CAP FG IN 4.4V — R7771 1000 — R7791 1000 — C7730 .1 — R7808 1000 — C7725 .0022 — C7743 .001 — 85

1/2 VCC OUT 2.5V — 89

CAP ERROR OUT 5.0V — R7762 220K — R7763 47K — R7764 4700 — C7731 22µF — C7708 .0027 — C7713 .001 — 77

CAP ACC 2.6V — R7759 1000 — 75

5.0V — R7754 39K — 74

R7757 22K — C7709 .01 — R7758 15K — R7755 18K — R7756 1000 — 9 5.0V

4.0V — R7772 1000 — R7790 1000 — C7758 .01

DRUM PG IN 86

DRUM FG IN 4.0V — R7773 1000 — R7789 3300 — C7759 .01 — 87

DRIM ERROR OUT 5.0V — R7765 100K — R7798 1000 — D7701 — R7761 270K — C7710 .01 — C7734 .1 — R7760 1000 — 78

DRUM ACC/STOP 2.6V — 76

LED 1 0V — 58

LED 2 0V — 59

LED 3 5.0V — 60

LED 4 0V — 61

LED 5 5.0V — 62

CTL+ 4.2V — R7774 680 — Q7705 2SD1306 FF/REW SW — C7732 .0068 — R7796 3300 — 92 — SEE AUDIO/CONTROL HEAD CONNECTOR SC6601 PIN 6 PAGE 3C

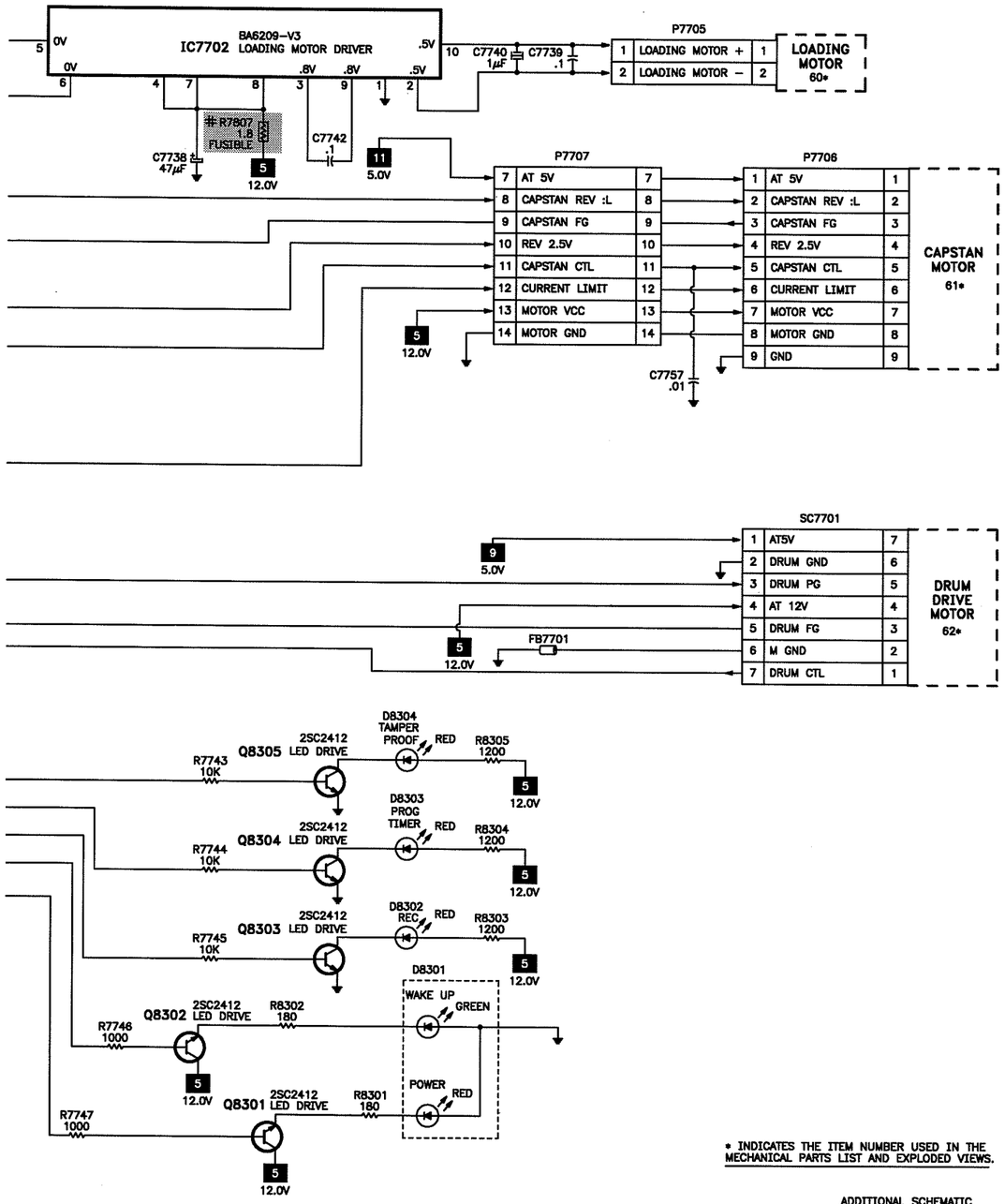
HIGH SPEED FF/REW (L) 5.0V — R7752 10K — R7797 1800 — C7733 220pF — 72

CTL- 4.2V — 91 — SEE AUDIO/CONTROL HEAD CONNECTOR SC6601 PIN 5 PAGE 3C

16MHz OSC OUT 2.3V — R7828 680K — X7701 — C7706 22pF — 39

16MHz AOSC IN 2.3V — C7705 22pF — 38

G
SERVO SCHEMATIC continued



* INDICATES THE ITEM NUMBER USED IN THE MECHANICAL PARTS LIST AND EXPLODED VIEWS.

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 2F

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MISCELLANEOUS ADJUSTMENTS continued

SERVICE MODE ADJUSTMENT CHART

Service Adjustment	Data Value Range	Initial Data Value	On-Set Data Value	Notes
Picture	0 - 63	16	17	Set brightness to minimum, picture to maximum. Adjust for normal contrast range.
Tint	0 - 77	33	34	Adjust for normal flesh tones.
Color	0 - 63	25	25	Adjust for normal color level.
Brightness	0 - 63	28	30	Adjust for normal brightness level.
Sharpness	0 - 13	7	7	Adjust for best sharpness level.
Vertical Phase	0 - 7	3	3	Adjust for best vertical size and linearity.
Horizontal Phase	0 - 31	20	20	Adjust for best horizontal centering on screen.
RF AGC	0 - 63	31	29	00 produces black raster.
V-Amp	0 - 63	18	18	Adjust for proper vertical size with best linearity.
PIF-VCO	0 - 127	64	64	-
R Cutoff	0 - 255	0	14	-
G Cutoff	0 - 255	0	3	-
B Cutoff	0 - 255	0	0	-
G Gain	0 - 255	128	128	-
B Gain	0 - 255	128	128	-
Y-Mute	0 - 2	0	0	0 = Normal, 1 = No Y, and 2 = No Vertical.
Balance	0 - 63	32	32	No adjustment required.
Text Box	0 - 127	28	28	Adjust to center the black box on the screen.
Text Picture	0 - 80	20	20	-
CCD Level	0 - 10	7	7	-
Option	0 - 3	1	1	-

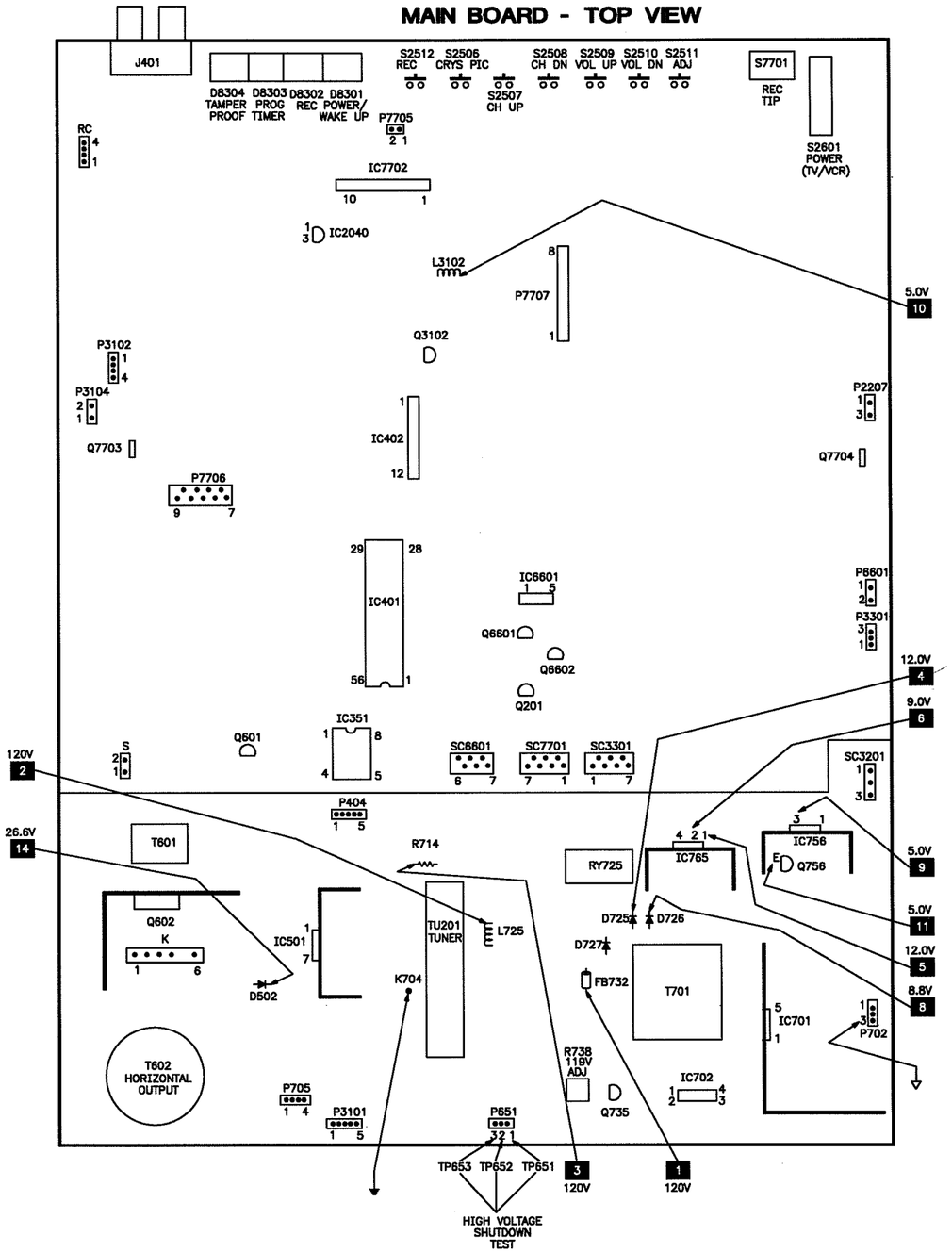
SCHEMATIC COMPONENT LOCATION GUIDE

C51	D24	C551	D3	C2213	B33	C5516	D29	C7743	B48	DY601	D8	L6602	C29	R302	A4	R615	E8	R882	C13	R2504	D25	R6603	C34	R7773	C48	SP1	A8
C52	B1	C552	B11	C2214	E29	C5517	D31	C7749	B42	F701	A17	L6603	C35	R303	B6	R631	D3	R883	C14	R2602	A25	R6604	C35	R7774	D47	T601	E5
C53	C2	C553	D3	C2215	E32	C5518	B32	C7750	D45	FB702	B21	L6604	E34	R305	A2	R632	E1	R884	C14	R2603	A25	R6605	C34	R7775	E46	T602	D10
C54	C1	C602	E3	C2216	E29	C5519	B33	C7755	C43	FB704	B21	L6605	C36	R306	B5	R633	D1	R961	A13	R3104	E27	R6606	C33	R7776	E46	T602	D20
C55	B2	C603	E4	C2217	B33	C5520	D32	C7756	C43	FB726	B22	L7701	D46	R307	A6	R651	E2	R962	A13	R3106	D18	R6608	D35	R7777	E41	T701	A21
C201	B1	C606	E5	C2218	D29	C5521	D32	C7757	B51	FB727	B22	P1	A17	R308	B3	R653	E2	R2002	C25	R3108	B2	R6609	D35	R7778	E41	T6601	C35
C202	B2	C607	E6	C2219	C33	C5522	D31	C7758	C47	FB731	A22	POWER	E50	R342	A2	R654	E2	R2003	C25	R3109	A26	R6610	C29	R7779	E41	V101	B16
C203	B2	C612	D8	C2221	B30	C5524	D30	C7759	C48	FB732	A23	PR701	A19	R344	B3	R655	D2	R2004	B27	R3110	D27	R6614	C29	R7780	E41	VA701	A17
C204	C3	C631	E1	C2223	D23	C5525	B30	CF301	A4	FB2001	E25	Q201	B1	R346	A3	R701	A19	R2005	B27	R3111	D27	R6615	D34	R7781	E46	X801	B13
C205	B4	C632	E2	C2224	C32	C5526	B31	CF302	A4	FB7701	C50	Q301	B5	R349	B6	R702	A18	R2012	C25	R3112	E27	R6616	D34	R7782	E46	X5502	C32
C206	C3	C633	C23	C2226	A35	C5530	E32	CF401	B5	FB7702	D45	Q351	B7	R350	B7	R703	B19	R2013	C25	R3113	E27	R6617	C29	R7788	E42	X7701	E47
C207	C3	C652	E2	C2228	A35	C5555	D29	CF631	D3	IC351	A7	Q401	B4	R351	B7	R704	A20	R2028	C25	R3117	E27	R6618	C29	R7789	C48	58 *	B40
C208	C11	C653	D2	C2230	B34	C6601	C35	CF2040	E25	IC401	A5	Q402	B5	R352	A7	R706	C21	R2040	C26	R3118	D26	R6619	C29	R7790	C47	59 *	C40
C209	B11	C701	A17	C2231	B35	C6602	C34	D51	D23	IC401	B10	Q403	B6	R353	A8	R707	C20	R2043	C26	R3119	D26	R6620	C36	R7791	B48	60 *	A51
C210	B2	C702	A19	C2235	D23	C6603	C34	D52	C2	IC401	B3	Q404	A10	R401	B4	R708	B20	R2055	C26	R3120	B26	R6622	B29	R7792	C43	61 *	B52
C211	B3	C703	A19	C2237	B33	C6604	C34	D55	B1	IC401	B7	Q421	C7	R402	B5	R709	C19	R2060	C25	R3121	B26	R6623	B29	R7793	E43	62 *	C52
C241	C23	C705	A21	C2238	C34	C6605	C35	D56	D23	IC401	D2	Q433	B8	R403	B5	R710	C20	R2061	C25	R3122	B26	R6624	B29	R7794	C43	63 *	B40
C301	A3	C707	C21	C2239	B34	C6606	C35	D401	D11	IC402	A2	Q601	E4	R404	B6	R711	C20	R2062	D17	R3123	B26	R6625	B29	R7795	C42		
C302	B4	C708	B20	C2240	C35	C6607	D32	D402	D11	IC402	C6	Q602	E6	R405	B6	R712	C20	R2201	A30	R3124	D26	R6626	D30	R7796	D47		
C303	B5	C709	C19	C2241	B35	C6608	D34	D451	E11	IC501	D5	Q735	B18	R406	B6	R713	B19	R2202	A30	R3125	D26	R6627	E33	R7797	E48		
C304	A4	C710	C20	C2242	B34	C6609	C29	D455	D12	IC701	B20	Q736	B18	R407	B6	R714	B24	R2203	A31	R3127	C27	R6628	E34	R7798	C48		
C305	A2	C712	B22	C2243	D24	C6612	C29	D457	E1	IC756	C23	Q756	D22	R408	C7	R716	C20	R2204	D34	R3128	C27	R6630	E33	R7799	D41		
C306	A3	C713	B24	C2244	B31	C6615	D33	D501	D5	IC765	B23	Q852	A15	R409	D11	R717	A20	R2205	D34	R3129	E27	R6632	E34	R7800	D41		
C307	B6	C717	B20	C2253	D31	C6616	D33	D502	E21	IC775	E17	Q854	C15	R410	C12	R718	D20	R2208	E29	R3130	E27	R7701	C43	R7801	D41		
C308	B6	C723	B22	C2254	D31	C6617	C29	D651	E2	IC2001	A26	Q856	B15	R411	B3	R727	C2	R2209	E29	R3131	C27	R7702	C43	R7802	D41		
C309	B4	C724	B22	C2255	E32	C6618	C29	D652	E2	IC2040	B25	Q881	C14	R412	D2	R735	C19	R2210	D29	R3132	C27	R7703	A43	R7803	B42		
C314	A6	C725	B22	C2256	E32	C6619	C24	D653	E2	IC2101	C27	Q2002	C26	R413	A13	R736	C18	R2212	B30	R3133	D27	R7707	E44	R7804	B41		
C329	B4	C726	B23	C2276	D31	C6620	D32	D701	A19	IC2201	C31	Q2201	A31	R414	C13	R737	C18	R2213	B30	R3134	B27	R7708	E44	R7805	A47		
C335	B23	C727	C22	C2601	A25	C6621	B29	D702	A19	IC2202	D32	Q2202	A31	R415	B13	R738	B18	R2215	A32	R3135	B27	R7711	A46	R7806	A47		
C341	A3	C728	A22	C3102	E27	C6622	B29	D703	A19	IC3301	A37	Q2203	B31	R416	A11	R739	B19	R2217	C31	R3136	D27	R7712	B44	R7807	A49		
C342	A2	C729	B22	C3103	E27	C6623	D30	D704	A19	IC6601	C36	Q2206	A35	R421	C7	R740	B19	R2218	C31	R3137	D27	R7719	D44	R7808	B48		
C343	A2	C730	A23	C3104	E26	C6624	D30	D705	C20	IC7701	C45	Q2208	B34	R423	A10	R741	B18	R2219	B33	R3138	D27	R7720	D44	R7809	D46		
C345	B2	C735	B18	C3105	D26	C6625	E33	D706	C19	IC7702	A49	Q2209	B35	R426	C4	R742	B18	R2220	B32	R3139	D27	R7724	B43	R7810	C46		
C346	C24	C737	B17	C3106	D26	C6626	E34	D707	C20	J401	A1	Q2211	B35	R427	C5	R743	B18	R2223	A36	R3140	D27	R7727	B43	R7811	C46		
C347	A2	C739	B19	C3107	D23	C6627	E35	D709	B20	J401	C4	Q2215	B32	R429	C5	R744	B18	R2224	A35	R3141	D27	R7730	A44	R7812	A46		
C351	A6	C756	C22	C3108	D24	C6628	E34	D710	D21	L51	B2	Q2216	A32	R430	C5	R745	B18	R2225	A36	R3142	B27	R7731	B44	R7818	B43		
C352	B7	C757	D23	C3110	A26	C7701	A43	D725	B22	L201	B2	Q2217	B32	R431	A9	R746	B18	R2226	A35	R3143	A27	R7735	A46	R7820	B43		
C353	A8	C758	D22	C3111	C27	C7702	E44	D726	B22	L202	B3	Q2218	B31	R433	C7	R747	B17	R2227	A35	R3144	A27	R7737	B46	R7821	B42		
C354	A8	C759	D23	C3112	E27	C7704	D46	D727	A22	L203	B2	Q2219	B31	R434	C7	R748	B17	R2229	B34	R3145	A27	R7738	D46	R7822	B43		
C355	A8	C768	B24	C3113	B27	C7705	E47	D735	B18	L211	C3	Q3102	D18	R438	B8	R756	D22	R2230	B35	R3162	D25	R7740	D46	R7823	D43		
C356	A8	C769	C24	C3114	A27	C7706	E48	D737	B17	L301	B4	Q3105	D18	R443	B8	R766	C22	R2235	C34	R3167	D26	R7743	D49	R7824	D43		
C361	B24	C775	E17	C3115	A27	C7707	B43	D738	B18	L302	B6	Q6601	C34	R444	B8	R775	D17	R2236	C34	R3173	E27	R7744	D49	R7826	B46		
C401	B6	C801	C12	C3116	A27	C7708	B48	D739	B17	L303	A3	Q6602	C33	R451	E11	R776	E17	R2237	B35	R3174	D17	R7745	D49	R7827	A46		
C402	B6	C802	C12	C3117	D27	C7709	C47	D775	E17	L321	B4	Q6605	C33	R453	E11	R782	E18	R2238	C35	R3175	D25	R7746	E49	R7828	E47		
C405	C12	C803	C13	C3120	D23	C7710	C48	D776	D17	L401	B5	Q6606	C34	R454	E11	R801	C12	R2239	B36	R3176	C28	R7747	E49	R8301	E50		
C406	C12	C804	B11	C3130	C6	C7713	B48	D881	C13	L402	B6	Q6607	E35	R456	D12	R802	B12	R2240	B35	R3177	B28	R7748	A44	R8302	E49		
C407	B5	C805	B12	C3301	A38	C7714	B42	D882	C13	L403	B6	Q6608	E34	R458	E1	R803	B12	R2241	B35	R3178	E28	R7749	A44	R8303	D50		
C408	C13	C806	B12	C3302	A39	C7715	E46	D885	C13	L404	B6	Q7703	C43	R466	A16	R804	B12	R2244	B32	R3179	D28	R7750	A43	R8304	D50		
C409	C3	C807	B9	C3303	B38	C7716	E45	D2001	B27	L615	E8	Q7704	C43	R501	D4	R805	B12	R2247	B32	R3191	B12	R7751	A42	R8305	D50		
C410	B11	C851	B15	C3304	B39	C7717	B46	D2002	B27	L701	A18	Q7705	E47	R504	D4	R806	B9	R2248	B32	R3195	C6	R7752	E47	R9902	B44		
C411	C24	C852	C15	C3311	B38	C7719	E46	D2003	B27	L702	A19	Q7706	B41	R505	D5	R812	A13	R2249	B32	R3206	B25	R7753	B47	RMC2601	A25		
C412	C23	C853	C15	C3312	A36	C7721	C24	D2060	C25	L725	A23	Q8301	E49	R506	D6	R814	C13	R2250	A32	R3207	B25	R7754	C47	RY701	A19		
C413	D1	C854	D16	C3313	B37	C7722	E42	D2207	B32	L726	B22	Q8302	E49	R507	D6	R816	B13	R2251	A32	R3208	B25	R7755	C48	RY701	C19		
C414	B7	C881	C13	C3314	B37	C7723	E42	D2208	A32	L727	C22	Q8303	D50	R508	D6	R851	A14	R2252	A32	R3209	B25	R7756	C48	RY725	B23		
C420	C7	C883	C14	C3316	B37	C7725	B48	D2209	A32	L2040	E26	Q8304	D50	R510	D7	R852	A15	R2253	B32	R3210	B26	R7757	C47	RY725	C19		
C422	C5	C2002	C25	C3317	B37	C7728	E43	D3103	C27	L2202	D29	Q8305	D50	R511	E20	R853	B15	R2254	B31	R3221	E18	R7758	C47	S2501	D25		
C426	C5	C2041	B26	C5501	C33	C7729	E43	D3116	D18	L2203	B34	R54	B28	R512	D7	R857	A15	R2255	B31	R3308	B38	R7759	B47	S2502	D25		
C451	E11	C2060	C25	C5503	D29	C7730	B48	D3123	C25	L2205	C34	R55	C28	R516	D6	R858	A16	R2256	B31	R3312	B38	R7760	D47	S2503	D25		
C453	D21	C2201	A30	C5505	E31	C7731	B48	D3194	D2	L2206	B34	R56	C1	R517	D6	R859	C14	R2257	B31	R3314	B38	R7761	C47	S2504	D25		
C454	E11	C2202	A31	C5506	E31	C7732	D47	D7701	C47	L2208	B31	R57	C2	R518	D7	R860	C15	R2258	B31	R5502	D29	R7762	B47	S2506	A26		
C502	D7	C2203	A31	C5507	E31	C7733	D48	D7702	E41	L2209	E32	R201	B1	R519	D7	R861	C15	R2259	B30	R5503	E31	R7763	B48	S2507	A25		
C504	D5	C2204	D24	C5508	D29	C7734	C48	D7703	E41	L2210	B34	R202	B1	R525	D5	R865	C15	R2262	A33	R5505	D29	R7764	B48	S2508	A25		
C505	D4	C2205	D24	C5509	D29	C7735	D42	D7704	D41	L3101	D27	R203	B1	R551	D4	R866	C15	R2265	A29	R5508	C29	R7765	C47	S2509	A25		
C507	D5	C2207	E32	C5510	D23	C7736	D42	D7705	D41	L3102	D23	R204	B1	R552	D3	R867	B14	R2266	A29	R5513	B30	R7766	D43	S2510	B25		
C508	D5	C2208	D30	C5511	E29	C7737	C24	D7707	C42	L3301	B37	R205	B2	R554	D3	R868	B15	R2270	B31	R5516	D35	R7767	D43	S2511	B25		
C509	E20	C2209	A29	C5512	E32	C7738	A49	D8301	E50	L5501	E31	R206	B2	R601	E4	R869	B15	R2273	B36	R5522	A35	R7769	B46	S2512	D25		
C510	E21	C2210	A29	C5513	A35	C7739	A51	D8302	D50	L5502	E29	R207	B2	R602	E4	R873	B15	R2276	D30	R5524	E30	R7770	B43	S2601	D25		
C513	D7	C2211	A33	C5514	D23	C7740	A50	D8303	D50	L5506	B31	R208	B11	R603	E4	R874	B15	R2502	D25	R5553	E29	R7771	B47	S7701	B43		
C514	D6	C2212	D32	C5515	D23	C7742	A50	D8304	D50	L6601	C34	R301	B4	R608	E3	R881	C13	R2503	D25	R6601	C35	R7772	C47	SF201	B2		

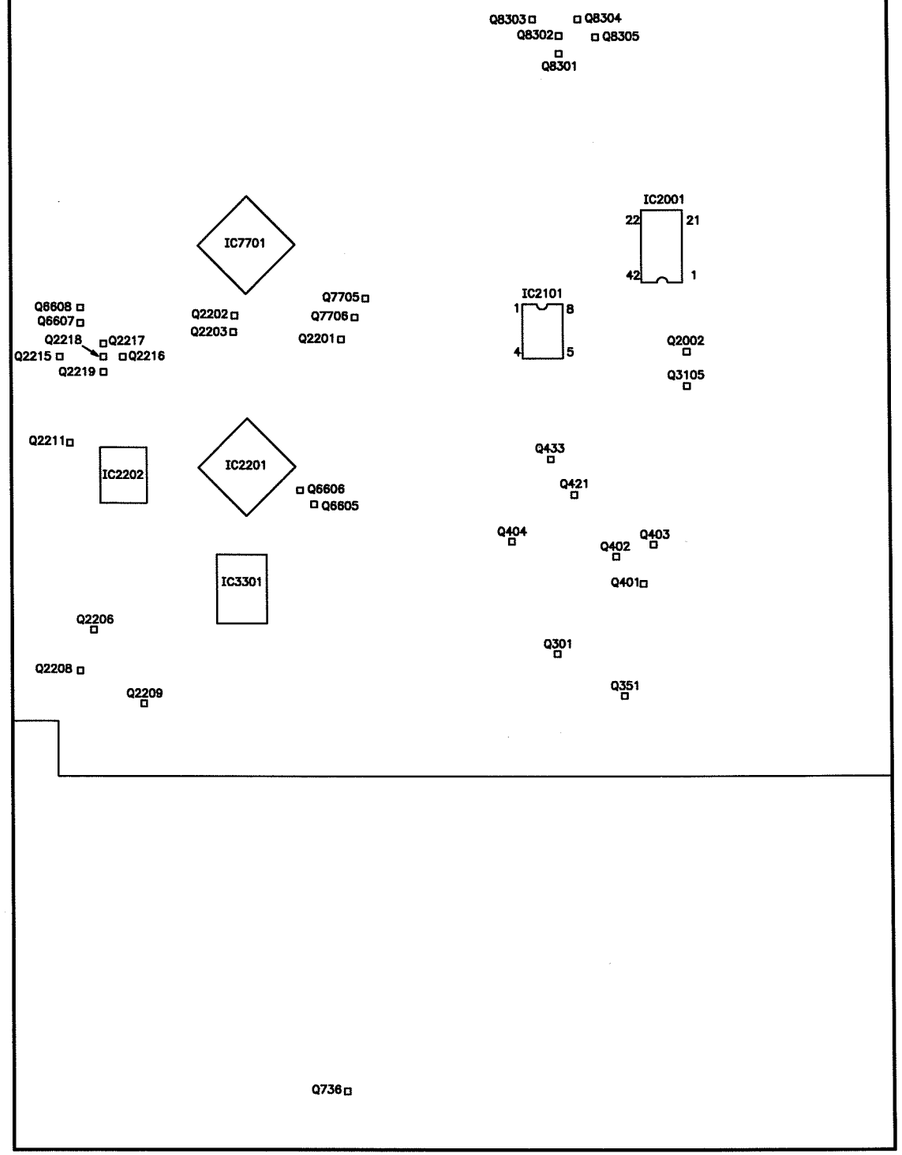
* Indicates the item number used in the mechanical parts list and exploded views.

PLACEMENT CHART

MAIN BOARD - TOP VIEW

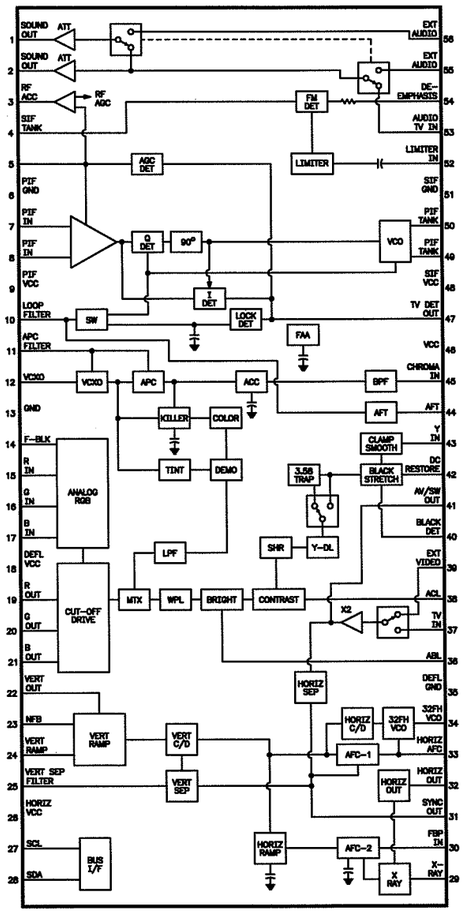


MAIN BOARD - BOTTOM VIEW

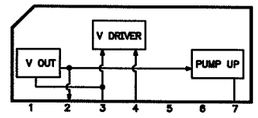


IC FUNCTIONS

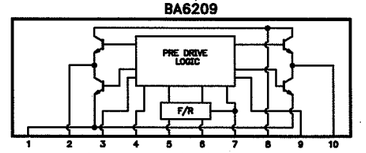
IC401
TA1268N



IC501
TA8403K

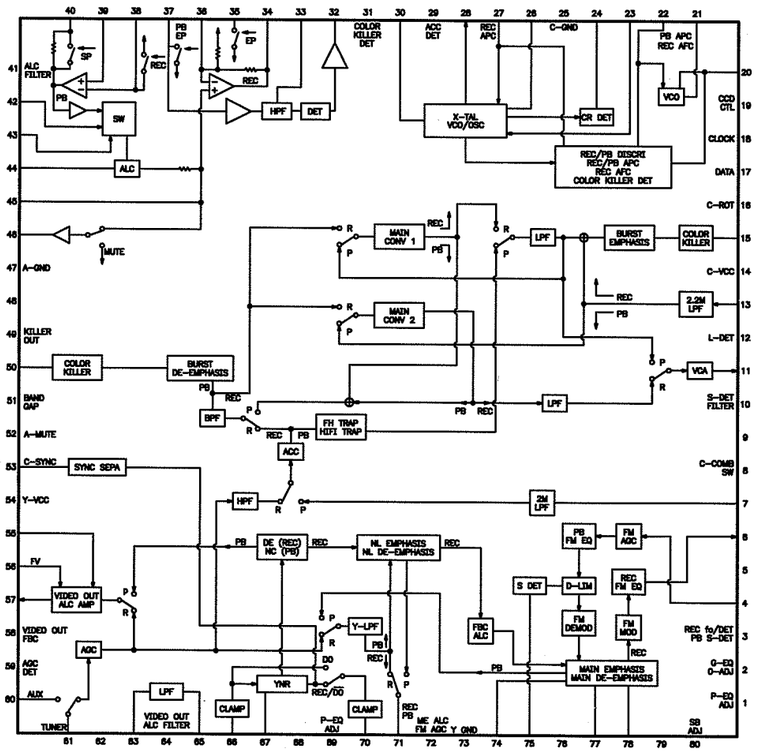


IC7702
BA6209



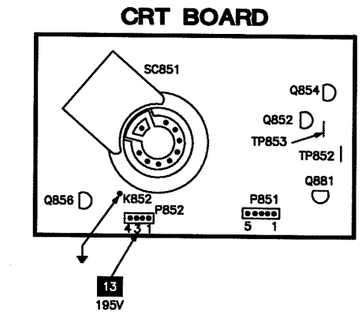
IC FUNCTIONS continued

IC2201
HA8304F

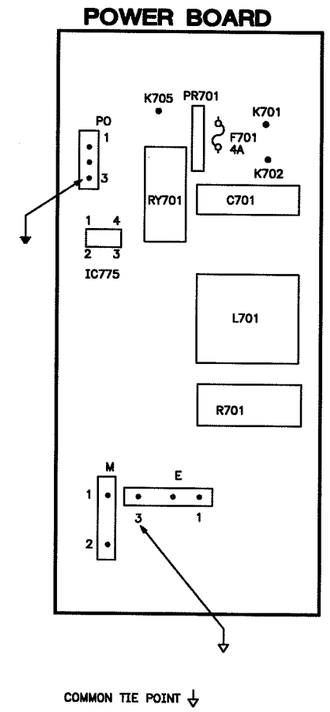


PLACEMENT CHART continued

CRT BOARD



POWER BOARD



ELECTRICAL PARTS LIST

SEMICONDUCTORS

	Item No.	Type No.	Mfr. Part No.	ECG Part No.
	D51	-	RH-EX0301CEZZ	-
	D52	-	RH-EX0207CEZZ	ECG5035A
	D55, 56	-	RH-EX0298CEZZ	-
	D401	1SS119	VHD1SS119//-1	ECG519
	D402	-	RH-EX0285CEZZ	-
	D451	-	RH-EX0298CEZZ	-
	D455	1SS119	VHD1SS119//-1	ECG519
	D457	-	RH-EX0313CEZZ	ECG139A
	D501	-	RH-DX0441CEZZ	ECG116
#	**D502**	-	RH-DX0131CEZZ	ECG552
#	**D651**	1SS82	VHD1SS82///1A	ECG177
#	**D652**	1SS119	VHD1SS119//-1	ECG519
#	**D653**	-	RH-EX0310CEZZ	-
#	**D701** Thru			
#	**D704**	-	RH-DX0154CEZZ	ECG116
	D705	1SS82	VHD1SS82///1A	ECG177
	D706	10ELS2	VHD10ELS2//-1	ECG587
	D707	1SS82	VHD1SS82///1A	ECG177
	D709	-	RH-EX0283CEZZ	-
#	**D710**	-	RH-DX0131CEZZ	ECG552
	D725	-	RH-DX0473CEZZ	-
	D726	-	RH-DX0433CEZZ	-
	D727	-	RH-DX0461CEZZ	-
	D735	-	RH-EX0299CEZZ	-
	D737, 38, 39	1SS119	VHD1SS119//-1	ECG519
	D775	-	RH-DX0441CEZZ	ECG116
#	**D776**	-	RH-DX0279CEZZ	-
	D881, 82, 85	1SS119	VHD1SS119//-1	ECG519
	D2001, 02, 03	1SS119	VHD1SS119//-1	ECG519
	D2060	1SS119	VHD1SS119//-1	ECG519
	D2207, 08, 09	1SS119	VHD1SS119//-1	ECG519
	D3103	1SS119	VHD1SS119//-1	ECG519
	D3116	-	RH-EX0335CEZZ	-
	D3123	1SS119	VHD1SS119//-1	ECG519
	D3194	-	RH-EX0281CEZZ	-
	D7701	1SS119	VHD1SS119//-1	ECG519
	D7702, 03	-	RH-PX0252GEZZ	-
	D7704, 05	-	RH-PX0253GEZZ	-
	D7707	-	RH-PX0234GEZZ	-
	D8301	-	RH-PX0008PEZZ	-
	D8302, 03, 04	-	RH-PX0013PEZZ	-
	IC351	TDA7233	VHiTDA7233/-1	-
#	**IC401**	TA1268N	RH-iX2933CEZZ	-
	IC402	TA8822SN	RH-iX2345CEZZ	-
#	**IC501**	TA8403K	VHiTA8403K/-1	-
#	**IC701**	STRF6514	VHiSTRF65142E	-
#	**IC702**	-	RH-FX0034CEZZ	ECG3098
	IC756	KiA7805PI	VHiKA7805Pi-1	ECG1960
	IC765	PQ09RD11	VHiPQ09RD11-1	-
#	**IC775**	-	RH-FX0034CEZZ	ECG3098
	IC2001	-	RH-iX2927CEN2	-
	IC2040	PST994C	VHiPST994C/-1	-

 # For SAFETY use only equivalent replacement part.

SEMICONDUCTORS continued

	Item No.	Type No.	Mfr. Part No.	ECG Part No.
	IC2101	XL24C01AF	VHiXL24C01F-1	-
#	**IC2201**	HA8304F	VHiHA8304F/-1	-
	IC2202	MN3880S	VHiMN3880S/-1	-
	IC3301	AN3363SB	VHiAN3363S/-1	-
	IC6601	BA7755	VHiBA7755//-1	-
	IC7701	M37776M5A135GP	RH-iX2948CEN2	-
	IC7702	BA6209-V3	VHiBA6209//1E	-
	Q201	2SC1906	VS2SC1906//1E	ECG107
	Q301, 51	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q401	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q402	2SA1037(KQ)	VS2SA1037KQ-1	ECG2409
	Q403	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q404, 21, 33	2SA1037(KQ)	VS2SA1037KQ-1	ECG2409
	Q601	2SC2482	VS2SC2482//-1	ECG399
#	**Q602**	2SD1554	VS2SD1554//1E	ECG2331
	Q735	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q736	2SA1037(KQ)	VS2SA1037KQ-1	ECG2409
#	**Q756**	2SD471	VS2SD471-KL1E	ECG293
	Q852, 54, 56	2SC2229(O)	VS2SC22290/1E	ECG399
	Q881	2SA1266(Y)	VS2SA1266-Y-1	ECG290A
	Q2002	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q2201	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q2202	DTA144EK	VSDTA144EK/-1	ECG2419
	Q2203	DTC144EK	VSDTC144EK/-1	ECG2418
	Q2206, 08, 09	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q2211	DTC144EK	VSDTC144EK/-1	ECG2418
	Q2215, 16	2SA1037(KQ)	VS2SA1037KQ-1	ECG2409
	Q2217, 18, 19	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q3102	2SA1271(Y)	VS2SA1271-Y-1	ECG383
	Q3105	2SA1037(KQ)	VS2SA1037KQ-1	ECG2409
	Q6601	2SC3939	VS2SC3939SQQR-1	-
	Q6602	2SC2001	VS2SC2001LK-1	ECG85
	Q6605	DTC124EK	VSDTC124EK/-1	ECG2416
	Q6606	DTA144EK	VSDTA144EK/-1	ECG2419
	Q6607	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q6608	DTA144EK	VSDTA144EK/-1	ECG2419
	Q7703, 04	-	RH-PX0004PEZZ	-
	Q7705	2SD1306	VS2SD1306-E1E	ECG2406
	Q7706	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408
	Q8301 Thru			
	Q8305	2SC2412(KQ)	VS2SC2412KQ-1	ECG2408

 # For SAFETY use only equivalent replacement part.

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Philips ECG Company (ECG)
- Sencore, Inc.

CAPACITORS & ELECTROLYTICS

	Item No.	Rating	Mfr. Part No.
	C414, 20	1µF 20% 50V NP	VCE9EA1HW105M
#	**C607**	.0068 +50% -10% 1.6kV	VCFPPD3CA682H
#	**C652**	10µF 20% 50V NP	VCEAGA1HW106M
#	**C701**	.22 250VAC	RC-FZ017SCEZZ
	C707	.0032 2kV	RC-KZ0404CEZZ
#	**C712**	.0047	RC-KZ0312CEZZ
#	**C713**	33µF 200V	RC-EZ0587CEZZ
	C728, 29	.001 2kV	RC-KZ0365CEZZ
	C854	.01 1.4kV	RC-KZ0016CEZZ
	C7740	1µF 20% 50V NP	VCE9EA1HW105M

 # For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS

	Item No.	Function/Rating	Mfr. Part No.
#	**PR701**	**PTC**	RMPTP0026CEZZ
#	**R451**	10K 5% 1/2W	VRS-SV2HC103J
#	**R458**	12K 5% 1/2W	VRD-RM2HD123J
	R506	68K 2% 1/8W	VRD-RA2BE683G
	R507	100K 2% 1/8W	VRD-RA2BE104G
#	**R511**	1 5% 1/4W	VRN-GA2EB1R0J
	R516	15K 2% 1/8W	VRD-RA2BE153G
	R517	22K 2% 1/8W	VRD-RA2BE223G
#	**R603**	2200 5% 3W	VRS-KT3LB222J
#	**R651**	68 5% 1/2W	VRD-RM2HD680J
#	**R653**	8200 2% 1/8W	VRD-RA2BE822G
#	**R654**	10K 2% 1/8W	VRD-RA2BE103G
#	**R701**	1.8 10% 5W Wirewound	VRW-KP3HC1R8K
#	**R702**	3.9M 10% 1/2W	VRC-UA2HG395K
#	**R703**	2.7M 10% 1/2W	VRC-UB2HG275K
	R714	4.7 10% 5W Wirewound	VRW-KQ3HC4R7K
#	**R718**	1 5% 1/4W	VRN-GA2EB1R0J
	R738	6800 119V Adjust	RVR-M4333CEZZ
#	**R775**	12K 5% 1/2W	VRD-RM2HD123J
#	**R857, 65, 73**	12K 5% 1W	VRS-VV3AB123J
	R7788, 93	10K 1% 1/16W	VRS-CY1JF103F
#	**R7807**	1.8 5% 1/4W Fusible	VRG-SC2EB1R8J
#	**VA701**	Varistor	RH-VX0026CEZZ

 # For SAFETY use only equivalent replacement part.

ELECTRICAL PARTS LIST continued

COILS & TRANSFORMERS

	Item No.	Function/Rating	Mfr. Part No.
#	**DY601**	Yoke Horiz 3.7mH Vert 29.2mH	RCiLH0150PEZZ
	FB702	Ferrite Bead	RBLN-0037CEZZ
	FB704	Ferrite Bead	RBLN-0036CEZZ
	FB726	Ferrite Bead	RBLN-0054CEZZ
	FB727, 31, 32	Ferrite Bead	RBLN-0057CEZZ
	FB2001	Ferrite Bead	RBLN-0037CEZZ
	FB7701, 02	Ferrite Bead	RBLN-0036CEZZ
	L51	22µH	VP-DF220K0000
	L201	1.2µH	VP-XF1R2K0000
	L202	VCO	RCiLi0618CEZZ
	L203	.56µH	VP-XFR56K0000
	L211	56µH	VP-XF560K0000
	L301	8.2µH	VP-XF8R2K0000
	L302	SIF Detector	RCiLi0617CEZZ
	L303	22µH	VP-MK220K0000
	L321	56µH	VP-XF560K0000
	L401	12µH	VP-MK120K0000
	L402	2.7µH	VP-XF2R7K0000
	L403	6.8µH	VP-XF6R8K0000
	L404	8.2µH	VP-XF8R2K0000
	L615	3.3mH	RCiLP0270CEZZ
#	**L701**	AC Line Filter	RCiLF0029PEZZ
#	**L702**	Deguassing	RCiLG0386PEZZ
	L725	68µH	RCiLP0195CEZZ
	L726, 27	47µH	RCiLP0179CEZZ
	L2040	Oscillator	RCiLB0015PEZZ
	L2202	82µH	VP-XF820K0000
	L2203	470µH	VP-MK471K0000
	L2205	15µH	VP-XF150K0000
	L2206	150µH	VP-XF151K0000
	L2208	100µH	VP-XF101K0000
	L2209	4.7µH	VP-DF4R7K0000
	L2210	560µH	VP-MK561K0000
	L3101, 02	10µH	VP-XF100K0000
	L3301	100µH	VP-MK101K0000
	L5501	10µH	VP-MK100K0000
	L5502	12µH	VP-XF120K0000
	L5506	39µH	VP-XF390K0000
	L6601	220µH	VP-DF221K0000
	L6602, 03	82mH	VPADK822J0000
	L6604	15mH	VPADK153J0000
	L6605	15µH	VP-DF150K0000
	L7701	1µH	VP-XF1R0K0000
#	**T601**	Horizontal Driver	RTRNZ0117PEZZ
#	**T602** (1)	Horizontal Output	RTRNF0141PEZZ
#	**T701**	Power	RTRNZ0114PEZZ
	T6601	Oscillator	RTRNH0053GEZZ

 # For SAFETY use only equivalent replacement part.
(1) Screen and focus controls are part of T602.

CABINET PARTS

Item	Mfr. Part No.
Model 13VT-J100	
Badge, Sharp (1)	HBDGB0014PESB
Button - Power (1)	JBTN-0260PEKA
Button - TV Control (1)	JBTN-0259PESA
Button - VCR Control (1)	JBTN-0254PESA
Cabinet Assembly	CCABA2403WEV0
Cabinet Rear	GCABB2314PEKA
Cassette Flap Door (1)	HDECQ0081PESC
LED Decoration Plate (1)	HDECQ0096PESA
Remote Control Cover (Window) (1)	GCOVA0077PESA
Spring - Cassette Flap Door (1)	MSPRD0123AJFJ
Spring - Power Button (1)	MSPRC0005PEFW
Model 13VT-J150	
Badge, Sharp (1)	HBDGB0014PESB
Button - Power (1)	JBTN-0260PEKB
Button - TV Control (1)	JBTN-0259PESB
Button - VCR Control (1)	JBTN-0254PESB
Cabinet Assembly	CCABA2403WEV2
Cabinet Rear	GCABB2314PEKB
Cassette Flap Door (1)	HDECQ0081PESD
LED Decoration Plate (1)	HDECQ0096PESA
Remote Control Cover (Window) (1)	GCOVA0077PESA
Spring - Cassette Flap Door (1)	MSPRD0123AJFJ
Spring - Power Button (1)	MSPRC0005PEFW
Model 13VT-CJ10	
Badge, Sharp (1)	HBDGB0014PESB
Button - Power (1)	JBTN-0260PEKA
Button - TV Control (1)	JBTN-0259PESA
Button - VCR Control (1)	JBTN-0254PESA
Cabinet Assembly	CCABA2403WEV4
Cabinet Rear	GCABB2317PEKA
Cassette Flap Door (1)	HDECQ0081PESC
LED Decoration Plate (1)	HDECQ0096PESA
Remote Control Cover (Window) (1)	GCOVA0077PESA
Spring - Cassette Flap Door (1)	MSPRD0123AJFJ
Spring - Power Button (1)	MSPRC0005PEFW

(1) Part of cabinet assembly.

ELECTRICAL PARTS LIST continued

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
	CF301	Filter	RFiLC0404CEZZ	4.5MHz
	CF302	Filter	RFiLC0403CEZZ	4.5MHz
	CF401	Filter	RFiLC0013CEZZ	4.5MHz
	CF631	Crystal	RFiLA0034CEZZ	503kHz
	CF2040	Filter	RFiLC0121GEZZ	-
#	**F701**	Fuse	QFS-B4023CEZZ	4Amp
	FH701	Fuse Holder	QFSHD1017CEZZ	For F701
	FH702	Fuse Holder	QFSHD1018CEZZ	For F701
	J401	Jack	QJAKF0040CEZZ	Assembly
#	**P1**	Line Cord	QACCD3051CESA	AC, Polarized
	RMC2601	Receiver	RRMCU0222CEZZ	Remote
#	**RY701**	Relay	RRLYU0038CEZZ	Degaussing
#	**RY725**	Relay	RRLYU0038CEZZ	Power
	S2501	Switch	QSW-K0077GEZZ	Stop/Eject
	S2502	Switch	QSW-K0077GEZZ	Play
	S2503	Switch	QSW-K0077GEZZ	Fast Foward
	S2504	Switch	QSW-K0077GEZZ	Rewind
	S2506	Switch	QSW-K0094GEZZ	Crystal Picture
	S2507	Switch	QSW-K0094GEZZ	Channel Up
	S2508	Switch	QSW-K0094GEZZ	Channel Down
	S2509	Switch	QSW-K0094GEZZ	Volume Up
	S2510	Switch	QSW-K0094GEZZ	Volume Down
	S2511	Switch	QSW-K0094GEZZ	Channel Adjust
	S2512	Switch	QSW-K0094GEZZ	Record
	S2601	Switch	QSW-K0593CEZZ	Power (TV/VCR)
	S7701	Switch	QSW-F0001PEZZ	Record Tip
	SC851	Socket	QSOCV0842CEZZ	CRT
	SF201	Filter	RFiLC0405CEZZ	SAW
	SP1	Speaker	VSP0080PBK7WA	3" Round, 8 Ohms
#	**TU51**	Tuner	VTUVTSH6UF78/	UHF/VHF
#	**V101**	CRT	VB34JFQ90X/*S	A34JFQ90X
	X801	Crystal	RCRSB0001PEZZ	3.58MHz
	X5502	Crystal	RCRSB0204GEZZ	3.58MHz
	X7701	Crystal	RCRSB0159GEZZ	-
	58 *	Head	RHEDT0031AJZZ	Full Erase
	59 *	Head	RHEDU0085GEZZ	Audio/Control, Assembly
	60 *	Motor	RMOTM1062GEZZ	Loading
	61 *	Motor	RMOTN2053GEZZ	Capstan
	62 *	Motor	RMOTP1129GEZZ	Drum Drive
	63 *	Drum	DDRMW0014TEX0	Upper and Lower, Assembly
		Antenna (1)	QANTR0019PEZZ	Rod
		Antenna (2)	QANTR0018PEZZ	Rod
		Magnet	PMAGF3006MEZZ	Purity/Convergence

* Numbers in parenthesis indicate the number used in the Mechanical Parts List and Exploded Views.
 # For SAFETY use only equivalent replacement part.
(1) Used in model 13VT-CJ10.
(2) Used in models 13VT-J100 and 13VT-J150.

MISCELLANEOUS continued

Item No.	Description	Mfr. Part No.	Notes
	PC Board	DUNTK8606WEW1	CRT
	PC Board (1)	DUNTK9258WEV4	Main
	PC Board (2)	DUNTK9258WEV1	Main
	PC Board (1)	DUNTK9259WEV4	Power
	PC Board (2)	DUNTK9259WEV1	Power
	PC Board	DUNTK9261WEV0	Sensor
	PC Board	DUNTK9260WEV1	VCR-Key
	Transmitter (3)	RRMCG1330PESA	Remote
	Transmitter (4)	RRMCG1330PESB	Remote
	Wedge	PSPAG0004PEZZ	Yoke Positioning (3 Used)

 # For SAFETY use only equivalent replacement part.
(1) Used in model 13VT-CJ10.
(2) Used in models 13VT-J100 and 13VT-J150.
(3) Used in models 13VT-CJ10 and 13VT-J100.
(4) Used in model 13VT-J150.

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